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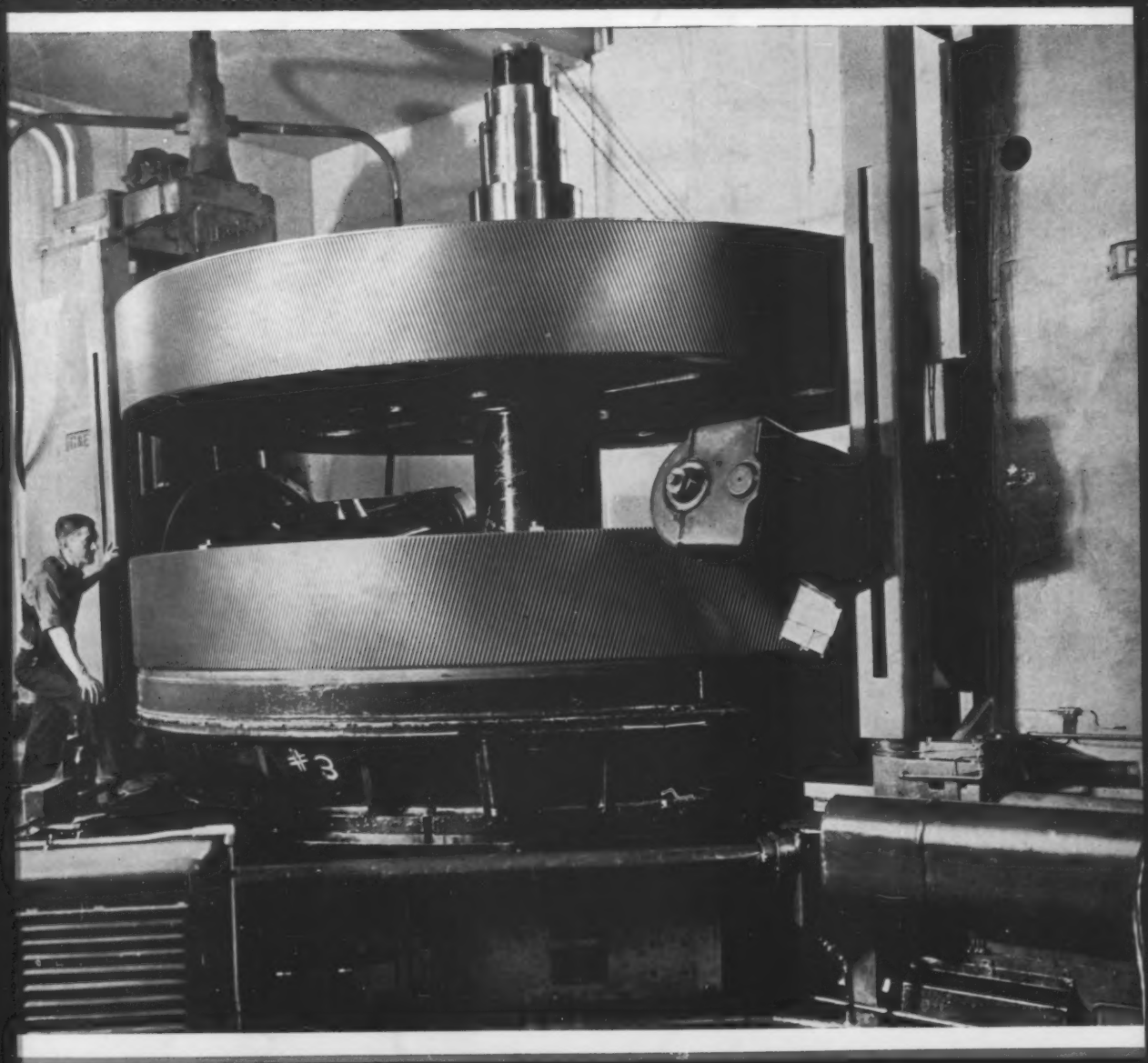
JUNE, 1946

THE Refrigeration INDUSTRY

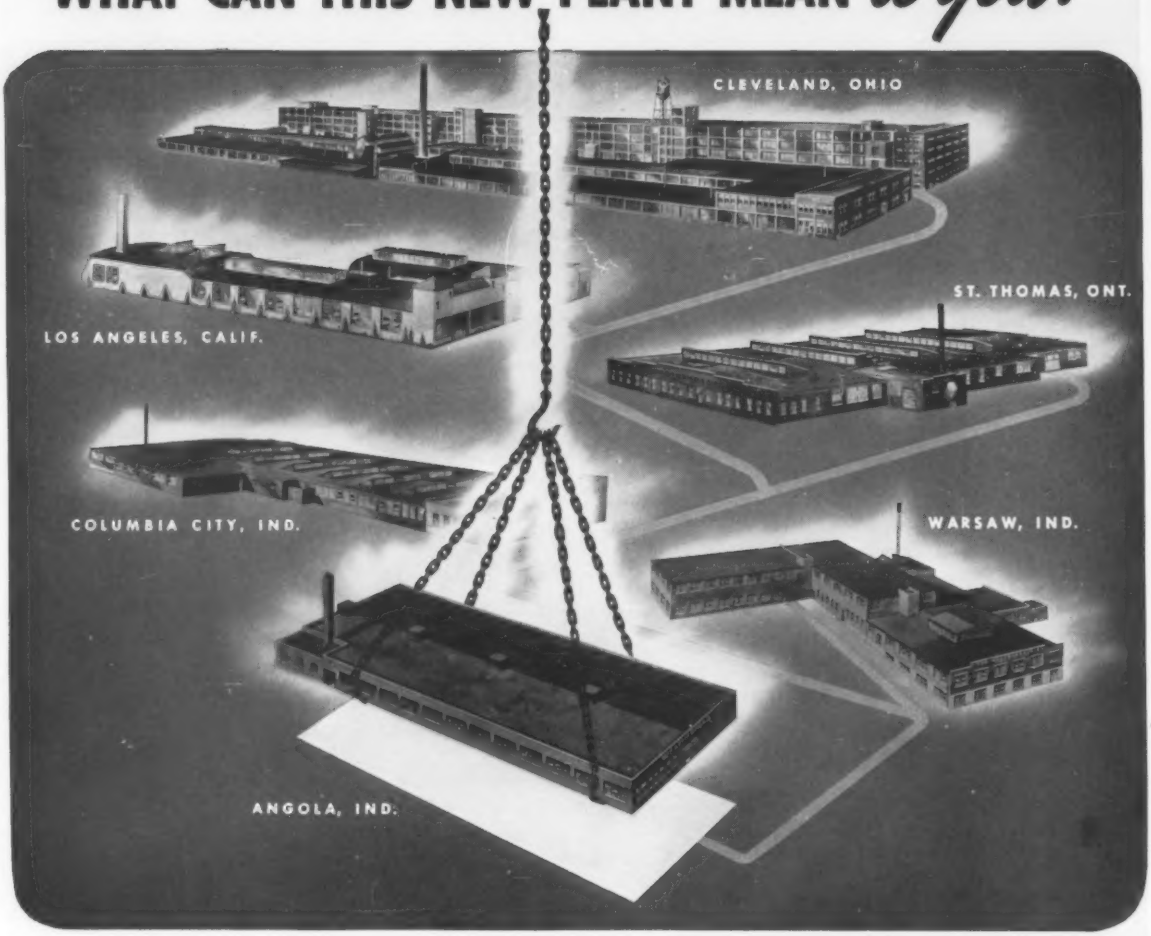
AIR CONDITIONING EQUIPMENT

MERCHANDISING • INSTALLATION • MAINTENANCE



Circulation of This Issue 23,986

WHAT CAN THIS NEW PLANT MEAN *to you?*



"Look Ahead with Weatherhead". . . is more than just a slogan with us!

Progressive planning is as much a part of our business as the production of precision products. Typical result of this policy is the opening of the new Weatherhead plant located at Angola, Ind.

This newest of six Weatherhead plants is important to us . . . can be important to you. For, when Weatherhead customers make use of these increased production facilities, they gain much more. In addition to securing a dependable source for high quality products, Weatherhead's complete staff of research and design technicians stands ready to help you in every way possible.

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These facilities and services can benefit you . . write us today about your problems.

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HOSE ASSEMBLIES
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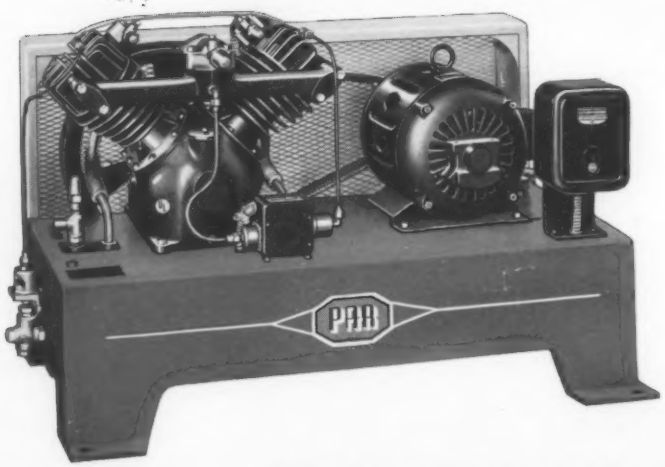
Balanced Performance

For more economical
more dependable **REFRIGERATION**
You can't beat **PAR**
air-and water-cooled models
From 1/6 to 5 horsepower.

PAR BY *Lynch*



ON the job performance gives definite proof that for economical, dependable operation you can't beat Par. Par's many outstanding features give added efficiency, long life, and trouble free service.

See your Par wholesaler for complete details or write for Par Catalog R-97.

PAR—Condensing Unit Line sold exclusively through Franchised Refrigeration Equipment Wholesalers!

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Manufacturing Corporation

General Offices, Toledo 1 • Factory, Defiance, Ohio, U.S.A.

GENERAL ELECTRIC COMPANY
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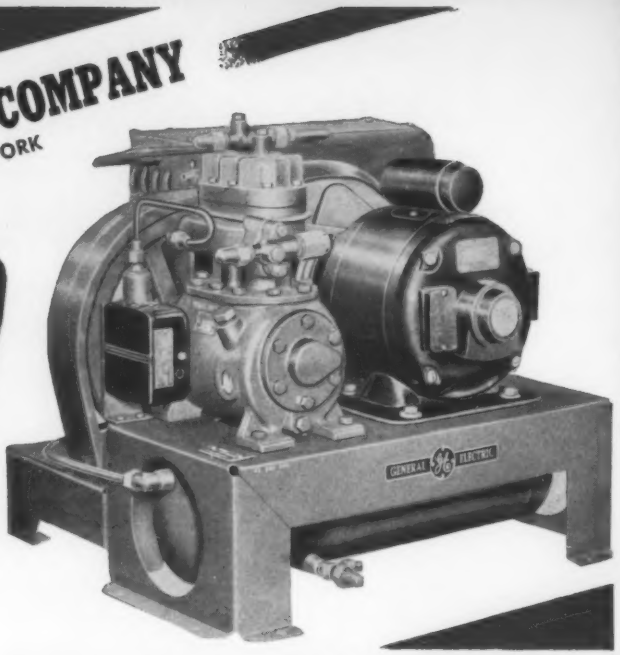
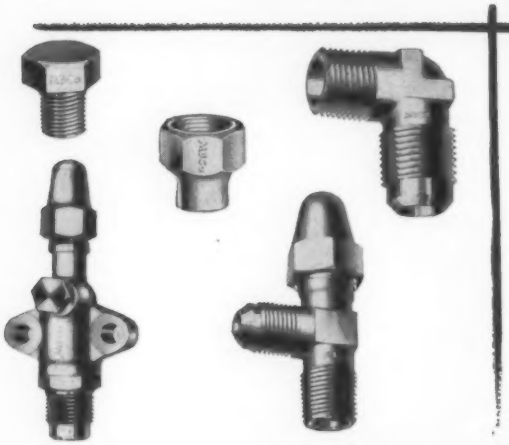
USES
MUELLER BRASS CO.
PARTS IN THEIR
C-M-43 B CONDENSING
UNITS



THESE PRODUCTS

MUST BE GOOD!



The condensing unit is the heart of the refrigeration system. It must operate dependably day in and day out to protect perishable foods—in stores, restaurants, hotels, hospitals, locker plants, on farms. A product of General Electric research and manufacture, the CM-43B condensing unit is designed for just this service—to give dependable, safe, and economical performance for many years.

G-E design means proper selection and application of many kinds of raw materials—co-ordinated engineering of compressor, condenser, motor and controls. G-E manufacture spells precision machining to close tolerances—advanced techniques in production — skilled painstaking workmanship, all important contributions to service life. G-E testing makes for dependability through hundreds of routine parts, tests and inspections—plus factory life and run-in tests—plus field tests.

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● Mueller Brass Co. Valves, Fittings and Accessories for mechanical refrigeration have a well-earned reputation for built-in quality and time-tested performance. They are manufactured specifically for mechanical refrigeration work. THEY ARE USED BY ALL OF THE LARGEST MANUFACTURERS THROUGHOUT THE UNITED STATES. Mueller Brass Co. products must be good!

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PORT HURON, MICHIGAN

THE Refrigeration INDUSTRY

VOLUME 3, No. 6 JUNE, 1946

THIS MAGAZINE has no official affiliation with ANY group, society or association.

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CCA

THE COVER . . . Hobbing large diameter marine gears at the South Philadelphia Works of Westinghouse Electric Corp. is done in air conditioned rooms so as to minimize expansion and contraction of the metal. This is just one of the many applications to which air conditioning has been put in American industry. (Westinghouse photo)

CONTENTS

USEFUL LITERATURE 55
NEW PRODUCTS 56
BTU'S 27
COOLING FOR HUMAN COMFORT 28
REFRIGERATION ON THE RUN 31
PROFIT-SHARING PAYS 32
"LIQUID" REFRIGERATION SYSTEMS 35
KNOW-HOW PLUS SHOW-HOW BOOSTS WATER COOLER SALES 37
ABOUT PEOPLE 39
A B C's OF ON-THE-JOB TRAINING 40
REFRIGERATION INDUSTRY NEWS 43
CONTRACTOR NEWS, ACTIVITIES AND PLANS 49
THE PRACTICAL REFRIGERATION ENGINEERING MANUAL . . 65
OVER THE COUNTER 72
HERE'S HOW 77
THE MARKET PLACE 80
INDEX OF ADVERTISERS 80

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BONNEY "Preferred" OPEN-END WRENCHES

• Bonney Open-end Wrenches, like all the tools in the complete Bonney line, are *preferred* by mechanics who take pride in their tools. Bonney Open-ends are preferred because of their better balance, their pear-shaped heads with accurately milled openings and their greater strength and longer wearing qualities. Like all Bonney Tools, they are heavily chrome plated. They are tools every mechanic is proud to own. Ask your nearby Bonney Jobber or Distributor about them—or write for a copy of the Bonney Tool Catalog.

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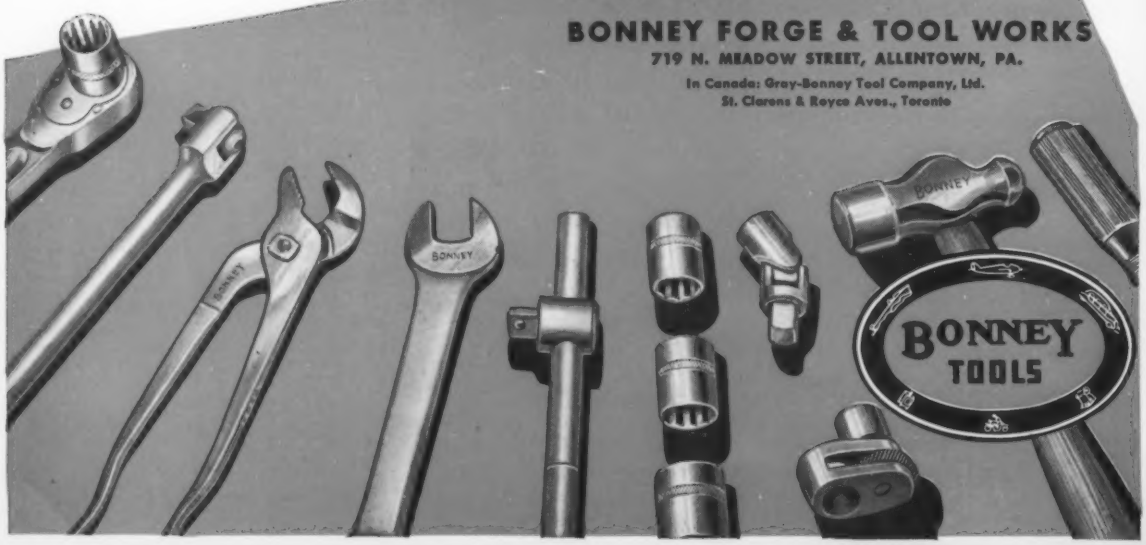
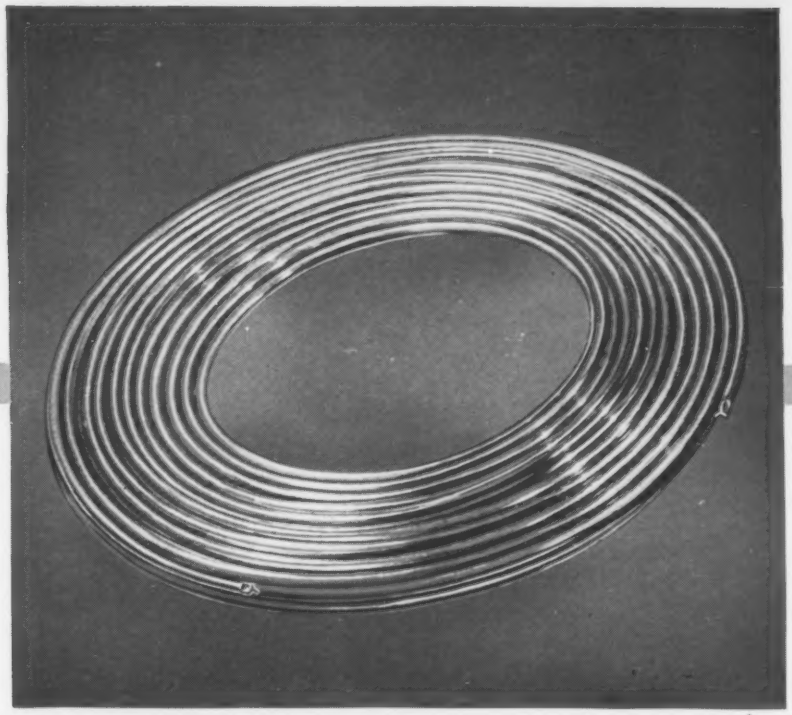


PROTECT VALVES AGAINST MOISTURE WITH



REVERE DRYSEAL TUBE

An expansion valve is seldom at fault when it "sticks." Moisture is usually to blame. A single drop of water, if frozen in the orifice of a valve, can cut off the flow of refrigerant. Even a fraction of a drop can partially obstruct the flow. And a slightly larger quantity can freeze the needle carrier tight, causing a valve to lose control.

One sure way to protect a system against moisture is to use Revere Dryseal Tube. It is 99.9+% pure copper, dehydrated during production to remove all interior moisture, and comes to you bone dry and sealed at both ends to keep moisture *out.*

Made for refrigeration, air conditioning, heat control, bottled gas and other exacting services, Revere Dryseal Tube is dead soft for easy handling, and comes in sizes from ⅛″ to ¾″ O.D., with .035″ wall. It is standard in 50-foot coils. Sold by Revere Distributors in all parts of the country.

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Listen to *Exploring the Unknown* on the Mutual Network every Sunday evening, 9 to 9:30 p. m., EDST.

THIS "BLOTTER" IN A BOTTLE

helps you get longer life from air conditioning and refrigerating equipment

"Freon" safe refrigerants are almost totally moisture-free. Manufacturing specifications permit not more than 25 parts of moisture per *million* parts of "Freon"!

Because they are so free from moisture, "Freon" refrigerants reduce to a minimum the risk of corroding or freezing within capillary tubes and other parts of modern, compact equipment.

The "blotter" in a bottle—pictured above—constitutes a control test that insures the dryness of these refrigerants. The bottles contain a combination of highly absorbent ingredients through which samples of "Freon" are passed. The bottles are weighed before and after each test and from the difference in weight, analysts accurately determine the dryness of the product.

This is but one of scores of laboratory tests that are made throughout the intricate manufacture of "Freon" refrigerants to check and control the purity, dryness and other qualities of these superior refrigerants.

Today, prominent engineers in the air conditioning and refrigerating industry recognize these outstanding advantages of "Freon." That is one of the many reasons why they unhesitatingly recommend the use of equipment designed to utilize "Freon" safe refrigerants. Complete technical data on request. Kinetic Chemicals, Inc., Tenth and Market Sts., Wilmington 98, Delaware.

ADDITIONAL FEATURES OF "FREON" SAFE REFRIGERANTS

1. **Narrow boiling point range—confined within limits of 1/2°C.**
2. **Low volume of insoluble gases—less than 2% in vapor phase.**
3. **Freedom from acids—thorough tests prove there are no acids in "Freon" refrigerants.**
4. **Freedom from impurities—high boiling impurities total less than 1/20 of 1%.**

KINETIC

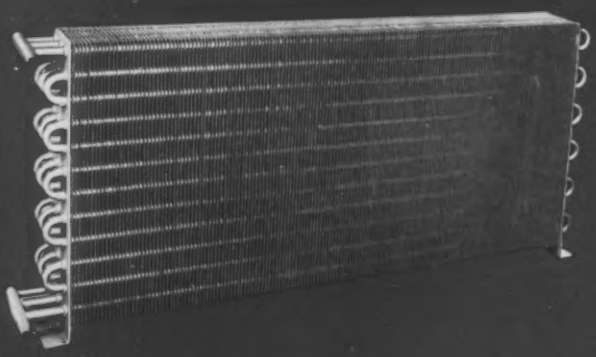
FREON

REG. U. S. PAT. OFF.

safe refrigerants

"FREON" IS KINETIC'S REGISTERED TRADE MARK FOR ITS FLUORINE REFRIGERANTS AND PROPELLENTS.

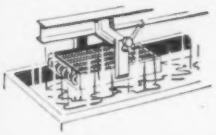
RIGHT
the first time ... and ever after



AIR COOLED CONDENSER

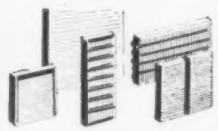
Bush
HEAT TRANSFER PRODUCTS

TUBING — Continuous, one-piece with no seams to give trouble. Stronger and more efficient construction.



HOT SOLDER DIPPED makes unit one integral part. Adds to strength and protects from corrosion.

ENGINEERED — for maximum capacity in a minimum of space. Compact — yet highly efficient in performance.



MANY SIZES — for all applications. No matter what the need there is a BUSH Condenser for the job.

BUSH

The unfailing, trouble-free performance for which BUSH Units are famous will prove you are ***right*** in selecting BUSH.

BUSH Units are ***right*** because on their performance record they are the most economical . . . dollar for dollar . . . that can be specified.

Repeat orders from jobbers, dealers, service engineers from every part of the country, have a special significance. They're proof of approval, indicating that BUSH Units have met the most exacting requirements for reliability, long service and high efficiency performance. The big swing is to BUSH because BUSH Units are ***right*** the first time . . . and ever after.

HEAT TRANSFER PRODUCTS

Sold by Leading Refrigeration Equipment Wholesalers The Country Over

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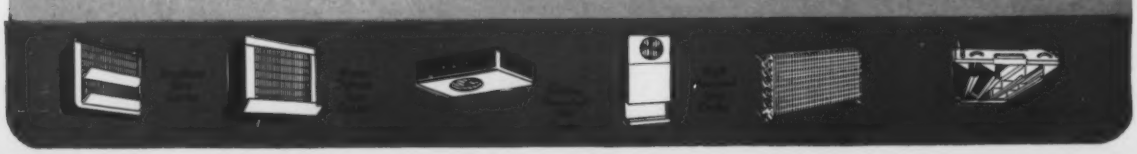


WAGNER Repulsion-Start Induction Motors Are Long-Lived, Economical, and Dependable

Wagner type RA repulsion-start induction motors give years of reliable, trouble-free service, because dependability is built into every motor.

Careful engineering has reduced wear, vibration, and noise of operation to a minimum. Many important construction features such as sturdy welded steel frames and well-insulated windings securely held in place, add to the ruggedness of the motors without sacrificing compactness or efficiency.

Wagner type RA motors embody all the important improvements in single-phase motor design. This means that the user of RA motors gets the best motors for the job with long life and dependability built into every part.

Type RA motors are available in ⅛ to 15 hp; sleeve or ball-bearing; horizontal or vertical; open, drip-proof, and totally enclosed; rigid, resilient, or flange mountings.

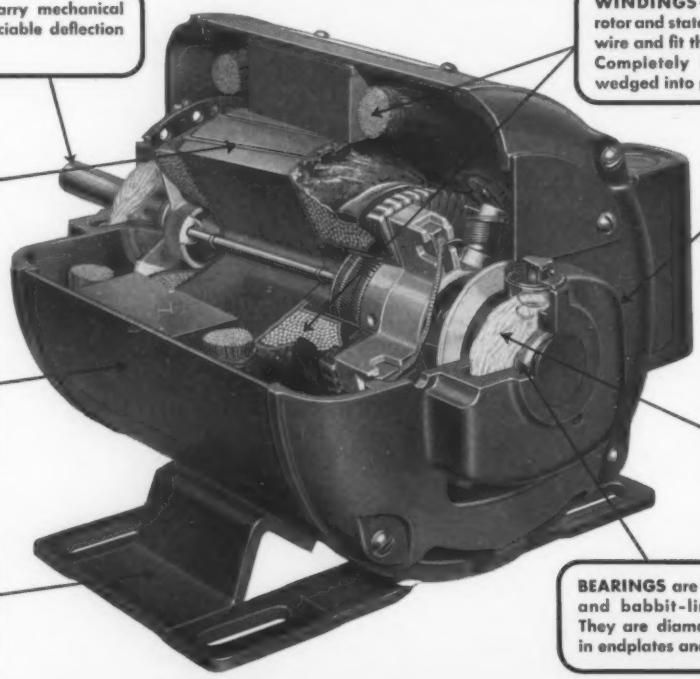
A few of the many Wagner construction features are shown below around a cut-away view of the type RA. For complete description of Type RA motors, write for Bulletin MU-185, and address your inquiry to Wagner Electric Corporation, 6442 Plymouth Avenue, St. Louis 14, Mo.

SHAFT is designed to carry mechanical overloads without appreciable deflection or vibration.

SLOTS in rotor are skewed to reduce magnetic noise and variation in starting-torque.

FRAME—Motor frame is formed from heavy sheet steel. Electrically welded to form a strong, rigid frame which withstands a considerable amount of abuse.

BASE is punched and formed from steel plate—unbreakable. Mounting slots permit shifting of motor for belt tightening.



WINDINGS—The windings of both rotor and stator are of heavily-insulated wire and fit the slots without crowding. Completely insulated and securely wedged into place.

ENDPLATES are concentrically machined and closely fit machined frames, assuring accurate centering of rotor and uniform airgap.

LUBRICATION—Long-strand wool yarn is used in all fractional-horsepower motors. Oil-wells are roomy and the yarn supplies plenty of oil, assuring adequate lubrication at all times.

BEARINGS are steel-backed for strength and babbit-lined to minimize wear. They are diamond bored after assembly in endplates and have a mirror-like finish.

M46-12

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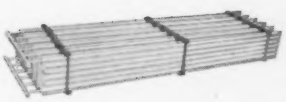
contents

Refrigeration KNOW HOW



The new KOLD-HOLD Catalog is a book of benefits and savings. It contains refrigeration know-how . . . information relative to the better storage and transportation of perishable products at lower costs. This catalog shows that Kold-Hold Serpentine Plate Type Evaporators have no equal in efficiency and dependability for locker plant space cooling, for shelves and stands in sharp-freezing or as cabinet liners, shelves or dividers. It explains how "Hold-Over" Plate Type Evaporators maintain the temperature of delivery bodies at the uniform level necessary in the successful transportation of fresh meat, ice cream, frozen foods and other perishables.

If you are interested in better storage and transportation of your products, write for this new free book of refrigeration knowledge today.

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KOLD-HOLD MANUFACTURING COMPANY, 503 N. Grand Ave., LANSING 4, MICH

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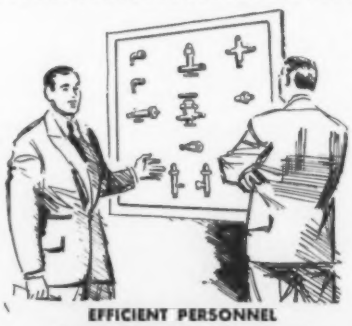

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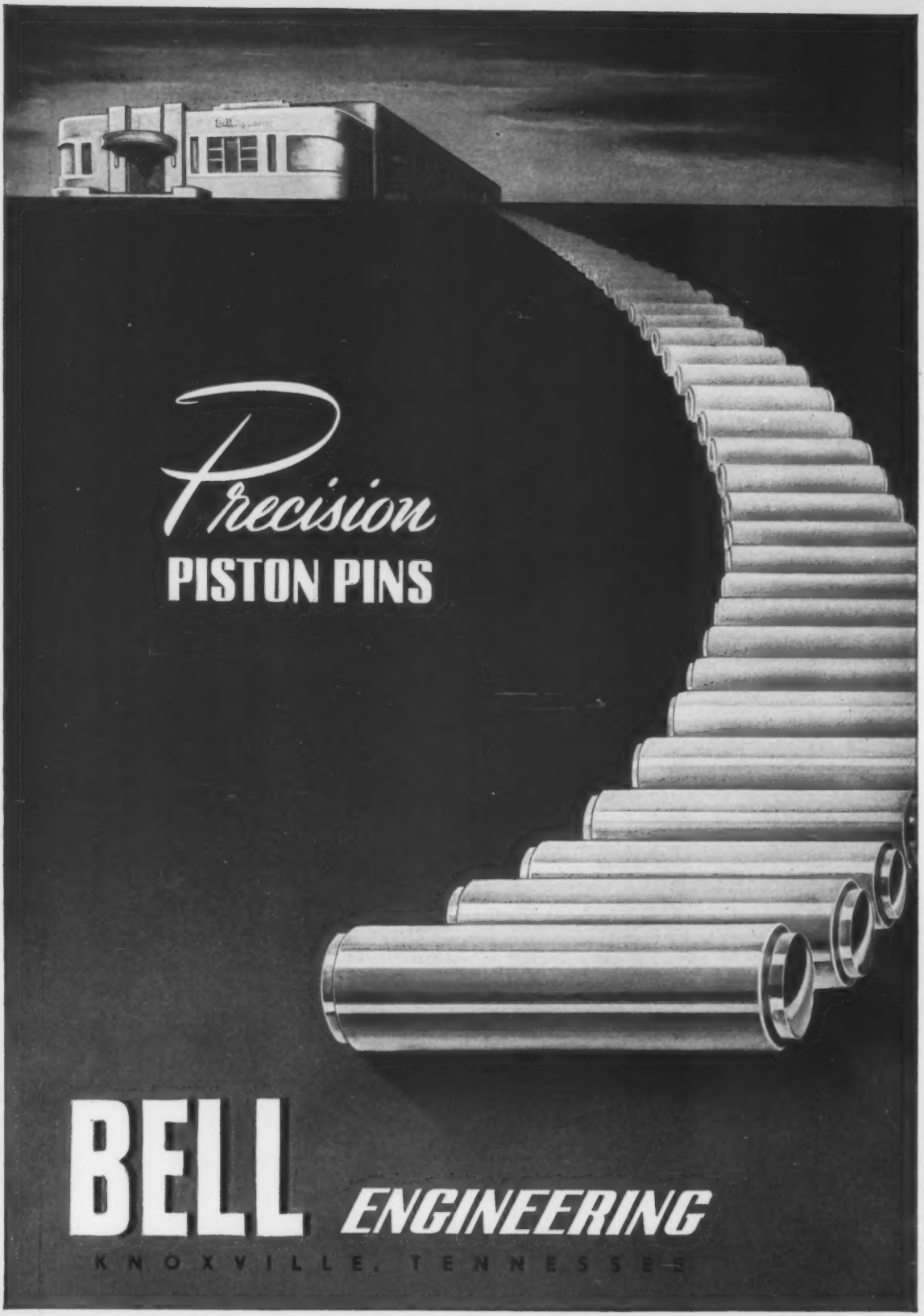
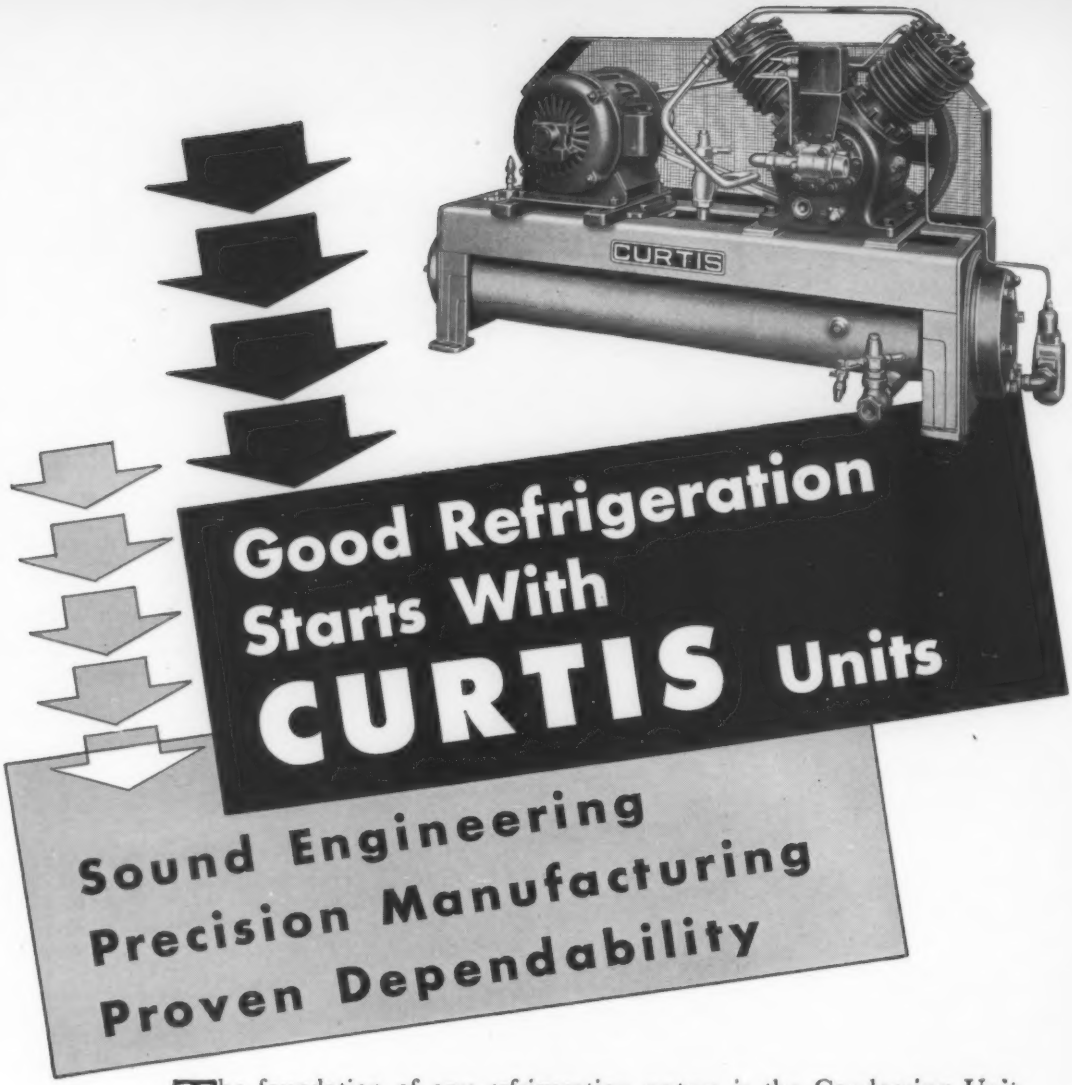

Precision
PISTON PINS
BELL ENGINEERING
KNOXVILLE, TENNESSEE



The foundation of any refrigeration system is the Condensing Unit. Curtis' record of dependable, economical performance, high efficiency, and low maintenance expense, is your guarantee that when you install Curtis it will be sound from every angle.

Whatever the application, for food preservation, for freezing, for locker plant operation, or for air conditioning — there's a Curtis Unit engineered to best fit each particular requirement. Your customers will be thoroughly satisfied with Curtis performance. Thousands of Curtis installations are giving trouble-free service and have for many, many years.

CURTIS REFRIGERATING MACHINE DIVISION

of Curtis Manufacturing Company

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92 years of successful manufacturing

B-504

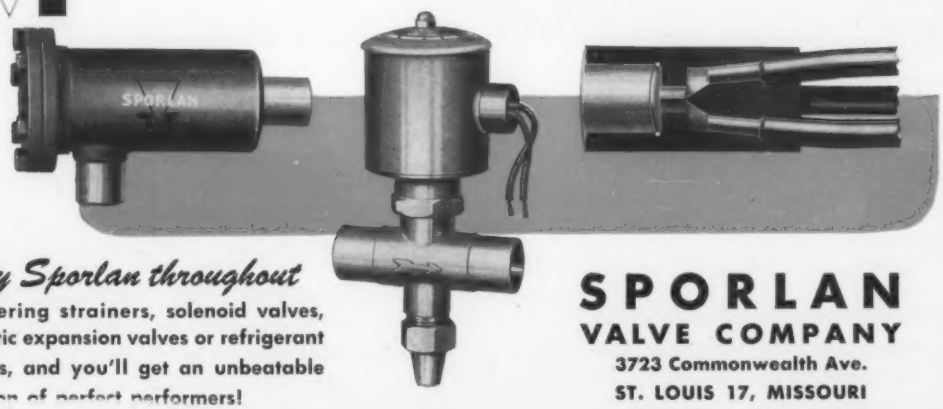
for PEAK PERFORMANCE on all Comfort Cooling Installations

specify

SPORLAN "G" charge

Only Sporlan offers you thermostatic expansion valves with selective charges... each to do a specific job. So don't just ask your wholesaler for a valve... ask him for a Sporlan valve, selectively charged to give you peak performance on any size installation.

SPORLAN



Specify Sporlan throughout

when ordering strainers, solenoid valves, thermostatic expansion valves or refrigerant distributors, and you'll get an unbeatable [illegible] of perfect performers!

SPORLAN VALVE COMPANY

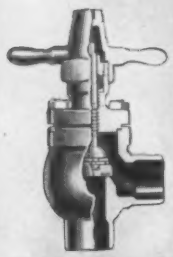
3723 Commonwealth Ave.

ST. LOUIS 17, MISSOURI

2 WAYS TO BE DIPLOMATIC

HENRY VALVE CO.
CONTROLLING FLOW
SINCE 1914

1. LOOK THE OTHER WAY AT THE RIGHT TIME
2. GIVE YOUR CUSTOMER HENRY PRODUCTS



On the links, it's diplomatic to look the other way when a player "dubs" his shot. Webster says "Diplomatic" also means "exercising shrewdness in the management of affairs." Shrewd refrigeration men maintain their fine reputations by installing only the best equipment such as HENRY Packless Valves, Driers, Strainers and Relief Valves. Even to people who are unfamiliar with the mechanics of refrigeration, it is well known that Henry products and good jobs "go together."

HENRY NON FERROUS WING CAP VALVE

Patented 2-piece stem design. Floating replaceable swivel shut-off disc with an insert of high melting point alloy. Back seating, it can be repacked under pressure. Full capacity passages. Wing cap forms tongue and groove recessed gasket joint with bonnet. Inverted cap can be used as wrench to open valve. Another famous Henry Product serving the industry.

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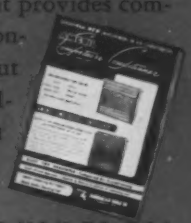
Get this literature! You can't be up-to-date on air-conditioning without it. The AMCOIL COMFORTAIRE CONDITIONER is really new and unique. Operates on a new development of the vapor-pressure principle! Requires only half the usual condensing unit capacity! Has positively demonstrated that it provides comfortable, healthful air conditioning for human comfort without that clammy overcooled feeling. AIR CONDITIONING AT ITS BEST.

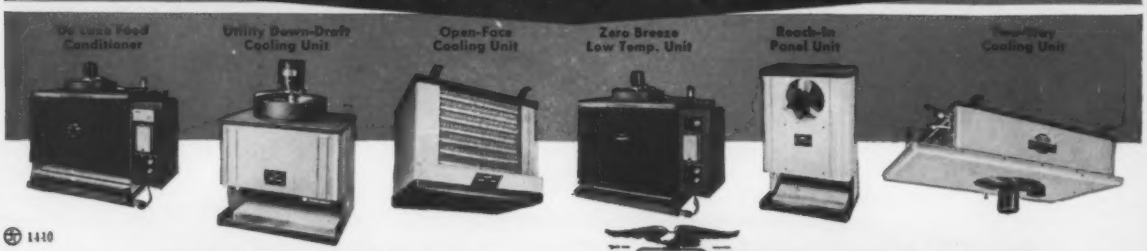


JUST ORDER FROM A SIMPLIFIED CHART AND INSTALL

NO "ENGINEERING" FOR YOU TO DO!

This new Amcoil development makes your selling job easier. All you have to know is size of the room and maximum number of occupants. The ENGINEERING is done. The Amcoil simplified selection chart gives you the proper size Comfortaire unit required to do the job. Never before has the selection of Air Conditioning Units been made so simple. Chart and full details come to you when you request the new Amcoil Bulletin AC-2. It will pay you to get your request in today.

Also . . . Fast-Moving Amcoil Refrigeration Units



1440

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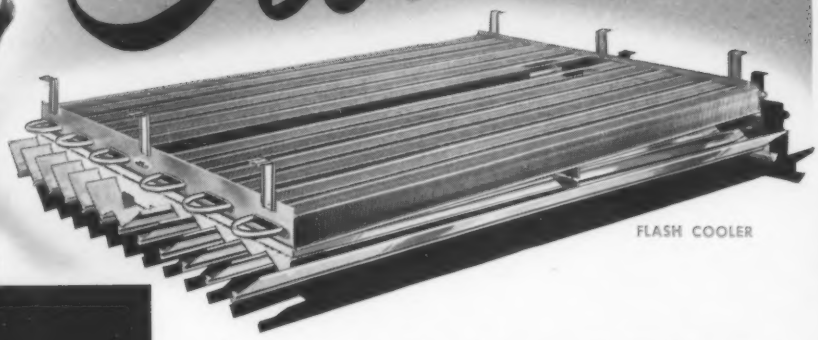
TOP BILLING FOR *Peerless*



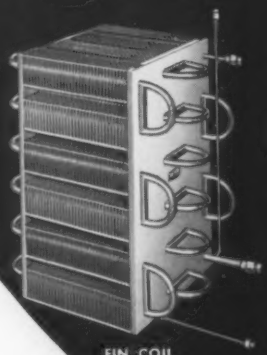
FLASH COOLER

Far superior in design and construction, Peerless Flash Coolers are completely non-ferrous. Pans, hangers, fins and end plates are all aluminum. Copper tubing is electro tin-plated. The entire unit is engineered for increased natural convection giving proper air circulation. Precision production going into manufacture of Peerless Flash Coolers is characteristic with the entire PEERLESS Line, giving it consistent top billing.

SOLD THROUGH LEADING REFRIGERATION SUPPLY WHOLESALERS

EXPANSION VALVE

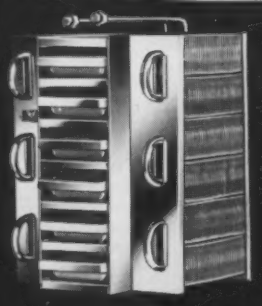
ICE CUBE MAKER



FIN COIL

CAPACITY BOOSTER

ICE CUBE MAKER



ICE CUBE MAKER

OFF CENTER COIL

PEERLESS
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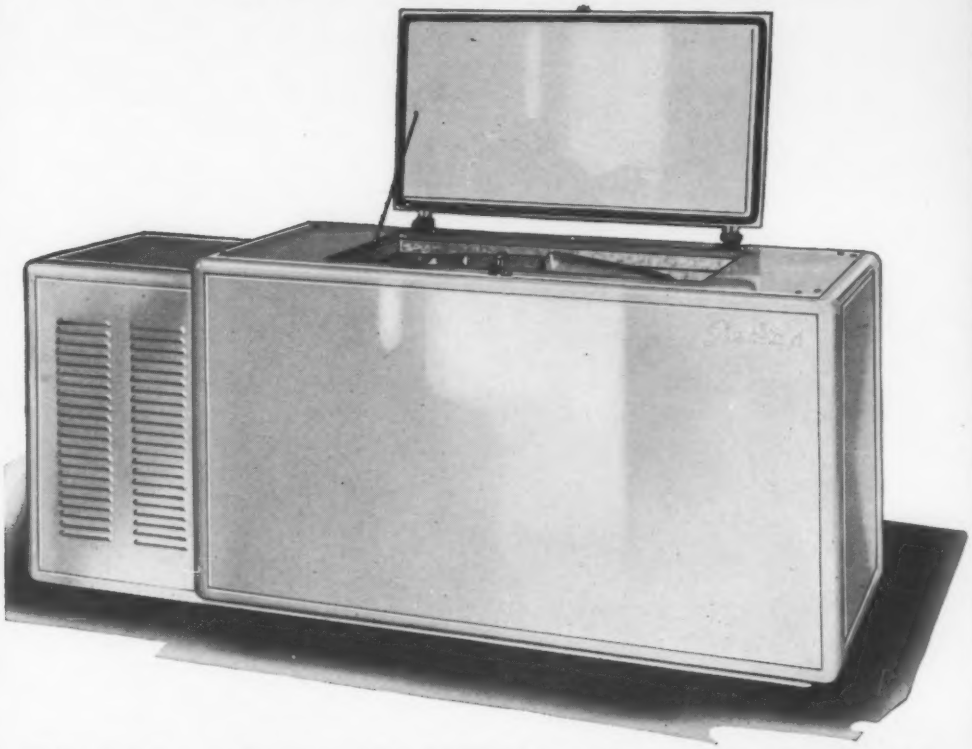
Manufactured for You

Apply Your Name Plate



USE YOUR BRAND NAME

PLAN FOR IMMEDIATE DELIVERY

NOW available, these modern post-war built cabinets come to you complete except for motors . . . or less motors and condensing units. You install condensing units and/or motors and produce as your OWN brand. These cabinets are ready to be delivered to you, either singly or in quantity . . . NOW.

Cabinet 15 cu. ft. comes with valves and controls, plates and connections installed, ready to mount units and/or motors. Length is 80″ overall, 34″ high for easy packing and 27½″ wide to permit passage through any standard door. Six pound density fibreglass insulation (equal to 1½ times its thickness in ordinary insulation efficiency) is vapor-sealed into the cabinet . . . a sure protection against moisture damage. Top opening lid as shown prevents "spill" of cold air; and positive "frost-break" provides ease of opening. Hardware is smartly appointed and chrome plated.

Made by manufacturers of controlled temperature equipment for over twenty years, these fine boxes, beautifully constructed, are of latest design with sturdy 18 guage all steel construction, bonderized and finished in baked white enamel. They may be offered as premium quality and priced to suit the most discriminating customer. Limited quantity available complete—*Act at once.*

For full information write to . . .

Shurkold Refrigeration Co.

1441 Chouteau Ave. Dept. N-1 **ST. LOUIS 3, MO.**

DON'T LET
DEMON HEAT
HOLD DOWN YOUR PROFITS!

Unwanted heat reduces efficiency, cuts production, increases costs.

Our "BALL-BONDED" Coils may save you countless dollars through more efficient heat transfer. Our engineers will gladly assist you.

MARLO
HEAT TRANSFER SURFACE

Ball-Bonded Blast Coils — Cooling and Heating • Air Conditioning and Refrigeration Apparatus • Industrial Blower Units Unit Coolers • Evaporative Condensers and Coolers • Low Temperature Apparatus.

MARLO = HEAT TRANSFER

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STRAINERS and FILTERS

FOR EVERY NEED

Mueller Brass Co. Strainers and Filters are manufactured throughout with non-ferrous metal, and have a polished natural metal finish. All tubular types are fabricated from brass or copper pipe with forged brass outlets soldered in place. Other types are made from brass forgings.

All Filters and Strainers are designed to insure efficient passage for the maximum refrigerant volume that is generally used in any particular size refrigerant line. The range is exceptionally complete — one for every specific purpose.

Write for literature on A-13661 Line Filter — inexpensive and with a maximum efficiency.

Order through your jobber.

MUELLER BRASS CO.

PORT HURON, MICHIGAN

The Ansul Research Staff

REPORTS ON:

SLUDGES

Approximately 90% of the sludges produced in refrigerating systems are due to moisture. The exact cause can always be determined by analysis, but the appearance of the sludge (see photos) is usually indicative of the cause.

SLUDGE DERIVED FROM MOISTURE — If water is present in a machine, the nature of the sludge depends upon the type of refrigerant and length of time the water is present. All refrigerants . . . sulfur dioxide, methyl chloride, Carrene and "Freon-12" . . . react with water to produce corrosion products characteristic of each. To prevent sludge, the amount of water present in a refrigerating system must be small enough to avoid ice separation and corrosion. For "Freon-12" and methyl chloride, a quantity of water approximately .05% by weight will cause corrosion; the limit is somewhat higher for sulfur dioxide.

SLUDGE DERIVED FROM OILS — Oil sludges are characterized by total or partial solubility in carbon tetrachloride, gasoline and similar solvents. It is generally presumed that oil sludges are due to two causes: (1) an interaction between the unsaturated constituents of the oil and the refrigerant; (2) a breakdown of the oil due to heat, oxidation, friction, etc.

GRANULAR SLUDGE . . . due to moisture

FLUID SLUDGE . . . due to oil

HARD SLUDGE . . . due to moisture and oil

SEND FOR "SLUDGES"
by
Ansul Research Staff

A detailed analysis of the refrigeration sludge problem.

ANSUL WHOLESALERS are ready and equipped to render an intelligent, cooperative service to refrigeration engineers and maintenance men on problems which arise from time-to-time in the operation of refrigerating systems.

FOR EXAMPLE:

Samples of ice machine oils, submitted by users of Ansul Refrigerants to Ansul Wholesalers, are tested by Ansul laboratories without charge by the Ansul Standard Wax-Oil Separation Method. This approved method, developed and standardized especially for use in connection with oils used in refrigerating systems, provides an accurate determination of the amount of wax which separates from an oil at low temperatures.

*REG. U. S. PAT. OFF.

LIQUID Sulfur Dioxide ANSUL*

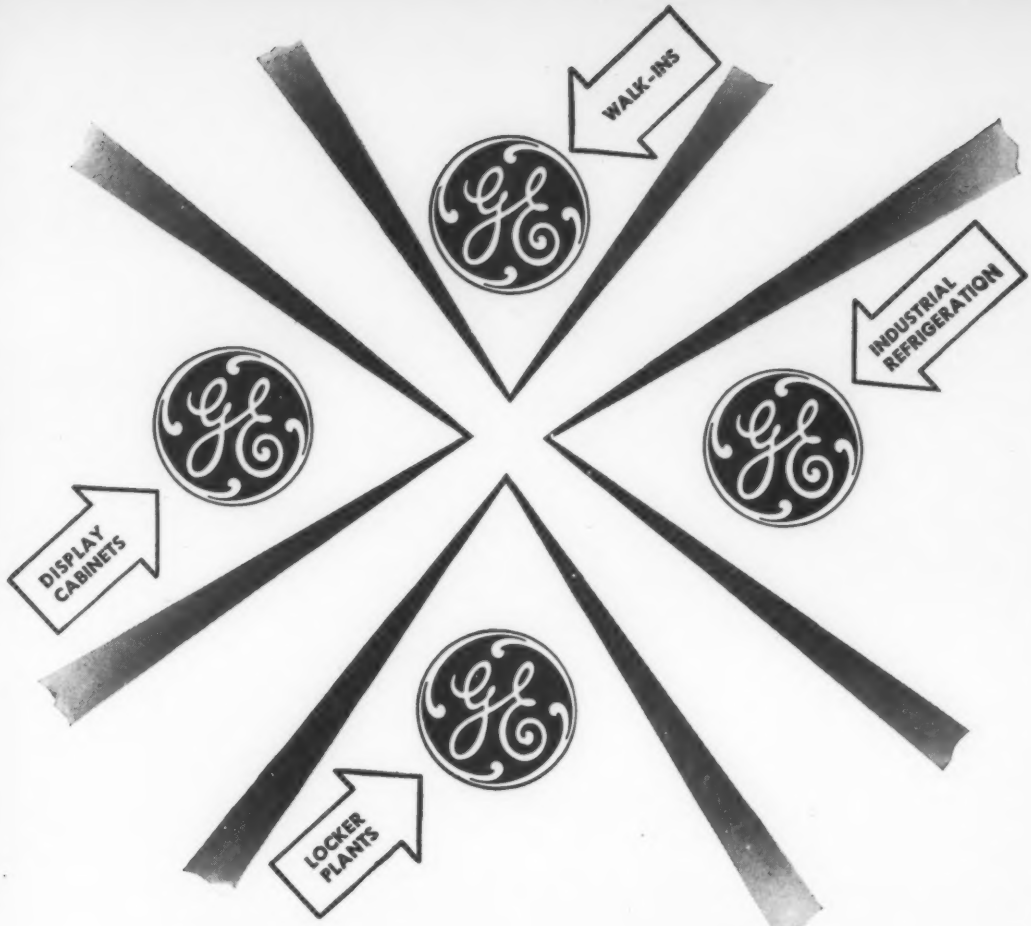
LIQUID Methyl Chloride ANSUL*

ANSUL REFRIGERANTS ARE AVAILABLE AT LEADING WHOLESALERS EVERYWHERE

ANSUL CHEMICAL COMPANY

REFRIGERATION DIVISION, MARINETTE, WISCONSIN

DISTRIBUTORS FOR KINETIC'S "FREON-11," "FREON-12," "FREON-21," "FREON-22" AND "FREON-113"



From every angle . . .

For every refrigeration need

For a 50-ton refrigerating unit in a huge nitroglycerine plant . . . for a small condensing unit for a butcher-shop walk-in . . . engineers make sure of the equipment they specify *by insisting on G. E.*

Every item in the extensive G-E refrigerating line is backed by factory tests and field tests. And more than that . . . it's backed by the G-E reputation built on years of outstanding results in the refrigeration field.

Back up *your* recommendations with G-E performance, G-E reliability, G-E service. Get in touch with us for full information on all types of refrigerating equipment. *General Electric Company, Air Conditioning Department, Section 6976, Bloomfield, New Jersey.*

GENERAL ELECTRIC

AIR CONDITIONING...COMMERCIAL AND INDUSTRIAL REFRIGERATION

Note these Features of "DETROIT" SOLENOID VALVES

1. POWERFUL—Ample power to lift against high pressures.
2. QUIET—Design of plunger and guide tube minimizes objectionable a-c hum.
3. EASILY INSTALLED—Substantial mounting boss on valve body makes for easy, rigid installation.
4. EASILY SERVICED—Can be disassembled and cleaned without disconnecting refrigerant lines or wiring.
5. POSITIVE CLOSING—Nonmagnetic needle and seat and strong "kick off" spring assure tight closing.
6. LONG-LIVED—Valve bodies are of close-grained, non-porous cast brass. Coils are of moisture-proof construction.
7. ECONOMICAL—Draw little current. Replacement parts if required are inexpensive.

Specify "DETROIT" Solenoid Valves.

No. 682-3—This reliable valve, like all "Detroit" solenoids is designed for use with any fluid that will not attack brass. Furnished with three sizes of orifices, 1/8", 3/16" and 7/32".

Nominal capacity—liquid line
1/8" orifice 1-1/3 tons Freon 2-3/4 tons Methyl
3/16" orifice 3 tons Freon 6-1/2 tons Methyl
7/32" orifice 3-3/4 tons Freon 8-3/4 tons Methyl
3/8" female N.P.T. connections.

No. 686—The No. 686 is a heavy duty, large capacity pilot operated valve which requires a pressure drop of 1-3/4 psi to operate the piston when used with refrigerants, 5 psi on water. It is made with 2 sizes of orifices, 1/2" and 5/8". Available threaded or flanged for various size tail pipes.

Nominal capacity—liquid line
1/2" orifice 11 tons Freon 73 tons Methyl
5/8" orifice 17 tons Freon 34 tons Methyl

No. 681—The No. 681 is of the pilot operated type and requires a minimum pressure drop of 1 psi to operate the piston.

Nominal capacity—liquid line
3/8" orifice 7-1/2 tons Freon 17 tons Methyl
1/2" female N.P.T. connections.

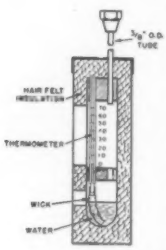
FOUR WIRE COIL

One of the features of "Detroit" solenoids preferred by jobbers and service men is the dual 115-230 volt 4 lead coil. This coil can be used on either 115 volt 60 cycle or 230 volt 60 cycle current by connecting the 4 leads in the right sequence. Correct wiring diagram is shown right on the coil-housing—a great time saver.

DOUBLE EVACUATION METHOD OF DRYING

No. 10 of a Series

When drying a refrigeration system by this method, a vacuum indicator, consisting of an insulated test tube containing a wet bulb thermometer with its wick immersed in distilled water, is connected to the high efficiency vacuum pump suction line. The thermometer will register the boiling temperature of the water in the system.



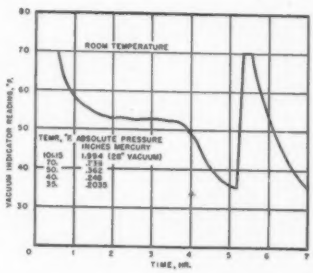
Wet bulb thermometer vacuum indicator.

Water, like the well-known refrigerants, has a characteristic curve defining an exact pressure-temperature relationship. With a very low absolute pressure (high vacuum), water will boil at 35° F and by the use of a high vacuum with all parts of the system at or near room temperature (70° F) a temperature difference between room and suction temperatures can be established which will allow sufficient heat to flow into the system to evaporate the water. As heat will flow in at a slow rate and since there may be large quantities of water to evaporate, the time necessary for complete dehydration is indefinite.

Results can be rather accurately determined by indirectly measuring the absolute pressure in the system by means of the "Vacuum Indicator"

Explanation of Method

When the dehydration operation is started the reading of the wet bulb thermometer will be practically the same as room temperature (70° F) since it is in a nearly saturated atmosphere. There will be no change in this reading until the pressure is reduced to .739 inches Mercury absolute (the vapor pressure of water corresponding to 70° F). As the pressure is further reduced, the indicator reading will fall rapidly until the water in the system starts to boil after which it will level out (the volume of vapor being formed equals the pump capacity and prevents further drop). After all moisture has evaporated and most of it has been pumped out of the system, the indicator will again fall rapidly as the pump removes air and water vapor. Evacuation should continue until the vacuum indicator shows a temperature of 35° F at which time the absolute pressure in the system will be .2035 inches Mercury.



A typical dehydration with vacuum indicator readings plotted against time.

Assuming this pressure to be due entirely to the water vapor remaining in the system, the residual moisture which this vapor represents can be calculated. Its density at .2035 inches Mercury absolute pressure is 2947 cu ft per lb, which is equivalent to 2.37 grains per cu ft If the system is opened at the point furthest from the pump and air is admitted while pump is running, a portion of the vapor will be swept out and the remainder greatly diluted. Approximately 5.3 grains of moisture will be carried in with each cu ft of average air. Neglecting the sweep and considering only the effect of dilution the total moisture content is now 2.37 + 5.3 or 7.87 grains per cu ft at atmospheric pressure. Now, by re-evacuating the system to 35° F or .2035 inches absolute pressure which is a compression ratio of 1/147, the moisture content is reduced to 7.87 divided by 147, or .054 grains of moisture per cu ft. In a typical system this will result in approximately 1 part moisture per million parts of Freon.

This method is effective on both high and extremely low temperature systems.

PROCEDURE: 1. Evacuate until vacuum indicator shows temperature of 35° F.

2. Open system at point furthest from vacuum pump with pump running and allow pressure to rise to atmosphere.

3. Re-evacuate until vacuum indicator again shows temperature of 35° F.

DETROIT LUBRICATOR COMPANY Division of American Radiator & Standard Sanitary Corporation

Reprints of these articles, size 8½ x 11" and punched to fit standard 3-ring binder, are available on request. Write for your copies.

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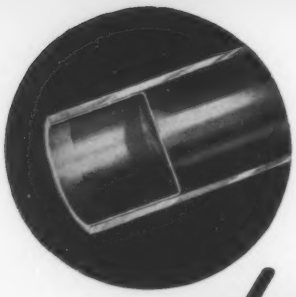
"DETROIT"

General Offices: 5900 TRUMBULL AVENUE, DETROIT 8, MICHIGAN

Division of American Radiator & Standard Sanitary Corporation

Canadian Representatives—RAILWAY AND ENGINEERING SPECIALTIES LIMITED, MONTREAL, TORONTO, WINNIPEG

"Detroit" Heating and Refrigeration Controls • Engine Safety Controls • Safety Float Valves and Oil Burner Accessories • "Detroit" Expansion Valves and Refrigeration Accessories • Stationary and Locomotive Lubricators



Why the CUP-SEAL*?

As coils leave the annealing furnace, warm, dehydrated air is blown through tubes. Ends are then Cup-Sealed.

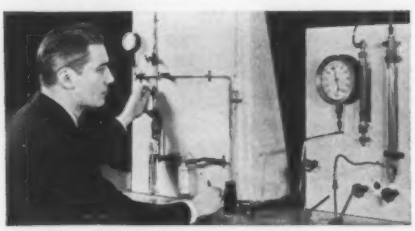
EVERY REFRIGERATION serviceman knows that only a few drops of water in a refrigerating system can be an annoying and expensive source of trouble. This problem of moisture is so important that specifications of the American Society of Refrigerating Engineers include the following:

> *"The maximum permissible water content of refrigerant system tubing or cooling coils as received at the point of installation shall be 300 milligrams per cubic foot of internal volume of the tubing or coil."*

In the production of Anaconda Copper Refrigeration Tubes, every care is taken to guard against harmful moisture: Tubes are made uniformly soft in special type annealing furnaces employing controlled atmospheres. Immediately after annealing, warm, dehydrated air is blown through the tubes. Then—as positive protection against dirt and moisture—both ends are sealed with the exclusive Anaconda Cup-Seal, retaining the clean, brigh dry interior of the tube from the mill to the poir of installation.

The Anaconda Cup-Seal helps retain roundness of the tube while cutting off the sealed end, reduces waste, eliminates the possibility of damage or injury caused by jagged, flattened edges. Specifying Anaconda Refrigeration Tubes by name is a profitable habit.

*Patent Applied For



Routine tests show that the moisture content of Anaconda Refrigeration Tubes is consistently below limits established by the American Society of Refrigerating Engineers.

ANACONDA

Anaconda

REFRIGERATION TUBES

THE AMERICAN BRASS COMPANY

French Small Tube Branch

General Offices: Waterbury 88, Connecticut

Subsidiary of Anaconda Copper Mining Company

In Canada: ANACONDA AMERICAN BRASS LTD., *New Toronto, Ont.*

Double Feature!

TODAY AND EVERY DAY

THAWZONE
PATENTED
The PIONEER FLUID DEHYDRANT

1. New or reconditioned units, before starting up, should have THAWZONE for those tiny amounts of moisture that even careful workmanship cannot always avoid. THAWZONE destroys them promptly and stays to prevent future trouble.

2. Systems now operating perfectly need THAWZONE now to prevent future moisture. It's economical insurance.

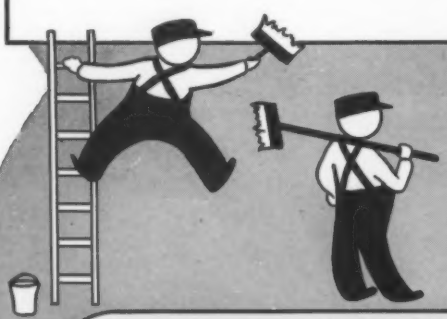
3. Units kicking up from moisture have been treated with THAWZONE by engineers for eight years. It's still good practice.

TRACE
REFRIGERANT LEAK DETECTOR

Add TRACE at any time to any refrigeration unit containing any refrigerant to:

1. Find present leaks.
2. Spot future leaks.
3. Locate the source (leaks) of moisture troubles.

TRACE has that vivid, stay-red color. It's manufactured by chemists with long experience in refrigeration, who understand the special and exacting requirements that must be met by any additive to a refrigeration system.



HIGHSIDE CHEMICALS CO.
195 VERONA AVE. NEWARK 4, N. J.

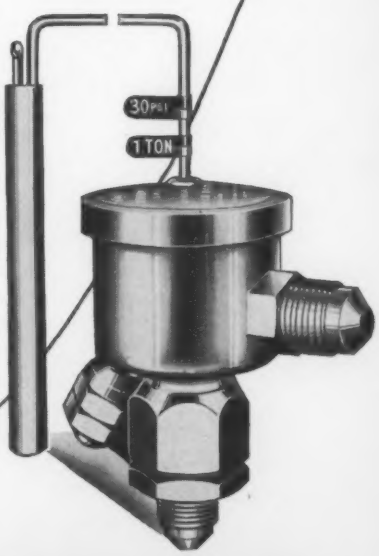
Interchangeable Capacity

THE NEW ALCO THERMO-LIMIT VALVE

...4 different capacities from 1 versatile valve!

With the new ALCO THERMO-LIMIT Valve, it's easy to change capacity on the job—in just a few minutes. By merely inserting different cage assemblies, this one unique valve will give you four separate capacities:

Catalog Number	Nominal Capacity in Tons	
	"Freon-12"	Methyl Chloride
151	.25	.50
152	.50	1.00
153	1.00	2.00
154	1.50	3.00



The ALCO THERMO-LIMIT is a "safety" valve that limits pressure to prevent motor overload. It is liquid charged for positive control in any location and position. Parts are interchangeable so that pressure, capacity and super-heat can be changed in the field.

Available at your wholesaler's for smaller capacity commercial refrigeration. Ask for our Bulletin 152.

ALCO

ALCO VALVE CO.

843 KINGSLAND AVE. • ST. LOUIS 5, MO.

Designers and Manufacturers of Thermostatic Expansion Valves; Pressure Regulating Valves; Solenoid Valves; Float Valves; Float Switches.

Finding fault is his business

Yes, PENN pays this man to find fault . . . to see that PENN Controls measure up to rigid specifications . . . to see that you, the purchaser, will receive *the best refrigeration controls that can be built!*

The manufacture of dependable and efficient controls is the aim of every PENN worker . . . of every PENN inspector and Quality Control engineer. They refuse to compromise. Not even the slightest deviation from PENN's high standards is tolerated. For instance, here, this inspector employs a visual gauge to check carefully the critical dimensions of a screw machine part used in PENN Automatic Controls.

And so it goes throughout PENN's modern factory. Care in design! Care in manufacture! Care in inspection! All aimed toward a single objective—*better automatic refrigeration controls for you!* Ask your jobber about them today. Controls are built for temperatures as low as —150° F., and for pressures as low as 28″ vacuum. *Remember, their extra value involves no extra cost. Penn Electric Switch Co., Goshen, Ind.* Export Division: 13 E. 40th Street, New York 16, U.S.A. In Canada: Penn Controls, Ltd., Toronto, Ont.

PENN

AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, ENGINES, PUMPS AND AIR COMPRESSORS

BTU's

News • Laws • Trends

Refrigerator Price Boost. OPA has granted manufacturers an 8% increase in their prices of new household mechanical refrigerators. This will result in a 4% increase in retail price ceilings on new units, since the increase in manufacturers' prices is being passed on through distribution channels on a dollars-and-cents basis only.

The increase is on the manufacturer's base price to distributors before excise tax, advertising allowances, and similar charges, and reduced the dealer margin between 1.3 and 2% depending upon the particular manufacturer's price and discount structure. In announcing the price increase, OPA said that it reflects "all labor and material cost increases allowable under the new wage-price policy."

Only models shipped from the factory after April 18 will have the new ceiling prices, however. All prior models, in warehouses or on dealers' floors, have to be sold at the old prices.

● **Common-Sense Priority Plan.** Dealers who bank too strongly on the validity of "priority" orders they may have for new refrigerators—when, as and if coming—are apt to be disappointed when the actual time comes to fill them. A recent "poll" by one appliance dealer indicated that customers, in their anxiety to get the first new merchandise available, may place orders with three or four dealers—and accept the first product that can be delivered.

Manufacturers, it is known, feel that there may be considerable "water" in the orders they now have on their books, for this very reason. If you've been operating under a "priority" plan of one sort or another, it's a good idea to keep your customer lists "fresh" by checking back on them every month or so. One dealer we've heard about has a very sound system: "priorities" with him are good for 30 days only; if the customer wants to reinstate his priority, he has to come in and fill out a new priority card. Needless to say, the dealer follows up prospects regularly, so that they'll keep coming back.

● **Copper Rationing Asked.** Voluntary rationing of copper and copper products has been asked by the Civilian Production Administration in a recent letter to copper producers and fabricators, and to copper and brass warehouses. Such action is necessary, the CPA said, because production has been hit by strikes at the mines and refineries and is now feeling the effects of the coal strike. Mine and smelter production, it was said, have dropped more than 50%; brass mill production is down to 15% of capacity, copper wire mills to 25% of capacity, and copper rod mills to 40% of capacity.

The rationing program would be designed to supply the greatest number of coppers users with their immediate needs, with each getting his proportionate share of the total amount available.

● **Coal Strike Hurts.** Compressor and other refrigeration equipment manufacturers are finding their ability to produce equipment seriously affected by the coal strike, and resulting shortages in supplies of steel and pig iron. Producers of malleable and gray iron castings used in compressors were in many cases reportedly only a few days away from having to materially cut down the flow of these products to the industries they serve. Steel castings producers were somewhat better off, since they rely primarily on power and gas supply rather than using coke and coal directly in production processes. However, curtailment of power because of fuel shortage would tie them up, too. Steel production has dropped steadily as producers conserved their fuel stocks. It was said that if the coal strike continued for a month or more over-all appliance production might fall 30 to 40% below first-of-the-year estimates.

● **Price Control Suggestion.** A new criterion for determining when to remove price controls from consumer durable goods was proposed by the Vacuum Cleaner Manufacturers Association at its recent meeting. Under the proposal, price controls would be dropped when production figures for a particular item exceeded for two successive months the monthly average production rates recorded in 1941.

● **Who Wants What Where?** One swallow doesn't make a summer, and the opinions of homeowners in one city don't necessarily reflect those of the nation at large—but the most recent Consumer Analysis made by the *Milwaukee Journal* does shed an interesting light on preferences in quick freezing units for home use.

Asked, "which of the following equipment would *best* meet your requirements for freezing or keeping foods fresh?", 167,807 homemakers, or 73.3%, said they would prefer a quick freezing unit and storage space in a regular mechanical refrigerator. In 1944, 67.7% favored this method. In contrast, 57,879 persons or 25.3% of those questioned in 1946 preferred a separate freezing unit, whereas in 1944 the number was 70,985 or 31.4%.

In another interesting section of the newspaper's survey, it is revealed that 102,560 persons, or 44.8%, now use frozen foods, whereas only 28.3% said they used them in the 1945 study, and the 1944 percentage of users was 21.5. More than 75% of regular frozen food users bought through their grocers.

● **What Restaurant Men Want.** On the basis of a survey of 1,010 restaurants, the National Restaurant Association estimates that restaurant owners throughout the country would spend an average of $370 each for refrigeration equipment right now—if they could get the equipment.

Frozen foods are proving great time and labor savers for restaurant operators. This has been especially true in the case of pies, muffins, rolls and other baked goods, where the products could be prepared far in advance of use and stored in the freezer until required.

COOLING FOR

By S. C. Moncher

INTRODUCTION

REFRIGERATION being an important phase of present day air conditioning, those of us engaged in the refrigeration industry often come in contact with a wide variety of comfort cooling problems in the course of our daily work.

It has become apparent in the last few years that the major channel through which comfort cooling equipment will be sold to the user will be through the refrigeration industry. This is particularly true for small and medium size installations ranging up to, say, 25 tons.

In most existing buildings, the heating equipment already in place is perfectly adequate and satisfactory, the cooling system being put in as a completely independent installation. For new buildings, of course, it ordinarily will be more advantageous to combine heating and cooling in the same system, thereby effecting economies in both space and cost.

The author has found that the far-sighted members of the refrigeration industry—including refrigeration contractors, service engineers, and salesmen—are anxious to get into comfort cooling. To do so, it is necessary for them to acquire certain technical knowledge which will enable them to discuss the subject intelligently and to perform the necessary calculations leading to the selection of the proper equipment.

The complete field of comfort cooling is very complex indeed, and cannot be mastered in a short time. In this series of articles, however, the author will present an introduction to the subject, set down in non-technical language and without the use of complicated mathematical equations.

Factors Affecting Human Comfort

BODY HEAT: The human body is constantly producing heat to provide energy for body functions and individual activities.

The fuel for this energy is furnished by the food we eat, and the heat produced varies from approximately 400 BTU per hour for a man at rest to 2000 BTU per hour for a man walking briskly.

In order to prevent a rise in body temperature and at the same time induce a feeling of comfort, it is necessary that the body heat generated be dissipated rapidly into the surrounding environment. It is evident that when the temperature of the environment is 20° or more below the body temperature of 98.6°, the heat produced in the body will quickly be absorbed into the environment.

In fact, in order to prevent the absorption of too much heat from the body, thereby inducing a feeling of chilliness, it becomes necessary for us to resort to heavy clothing or external heating as the temperature of the environment falls.

As the temperature of the surrounding atmosphere, however, approaches the temperature of the body, the processes of normal heat dissipation will be interfered with and a feeling of discomfort will result. The science of comfort cooling is devoted to counteracting this feeling of discomfort by producing a relatively cool environment indoors when the air outdoors is oppressingly hot.

HOW BODY HEAT IS DISSIPATED: Body heat is dissipated by the following three processes: (1) radiation to surrounding objects when these are at a temperature below body temperature, (2) convection into the ambient air, and (3) evaporation from the skin and lungs.

For every pound of water evaporated at body temperature, 1036 BTU of heat is absorbed from the body. The rate at which moisture evaporates from the body, however, is influenced primarily by the ability of the surrounding air to hold more moisture.

A large capacity for moisture induces a large rate of evaporation, while a small capacity for moisture retards the rate of evaporization, thereby depriving the body of one

HUMAN COMFORT

of its most effective methods of heat dissipation. It is easily seen, therefore, that the determination of comfortable atmospheric conditions must take into account, among other factors to be mentioned later, both the temperature and the capacity of the air for moisture.

HUMIDITY: The amount of moisture which air can contain in the form of water vapor varies greatly with its

temperature, air at 70° F, having a capacity for 110 grains of moisture per pound of dry air, while air at 56° F. has a capacity for 67 grains of moisture per pound of dry air. Any moisture added to the air will remain as a liquid, causing a mist.

The ability of air to absorb water vapor does not depend on the actual amount of water vapor already in the air, but on the capacity of the air for more moisture.

Thus, air at 70° F. containing 67 grains of water vapor per pound of dry air can absorb 43 more grains of water vapor. Air at 56° F. containing 67 grains of water vapor per pound of dry air, however, can absorb no more water vapor, and is said to be saturated under these conditions.

Saturated air, therefore, contains the maximum amount of water vapor it can hold at that temperature. When saturated air is heated its ability to absorb more water vapor is renewed.

Thus, if a mixture of one pound of dry air and 67 grains of water vapor is heated from 56 to 70° F., it will be able to absorb 43 additional grains of water vapor. Likewise, if a mixture containing one pound of dry air and 110 grains of water vapor is heated from 70 to 100° F., it will be able to absorb 190 additional grains of water vapor, making a total of 300 grains.

The actual amount of water vapor in air is known as the *absolute humidity*, and is usually expressed in grains of moisture per pound of dry air.

Inasmuch as we have seen that absolute humidity is not a measure of the ability of air to absorb moisture, it becomes necessary to define this important property of air.

We have noted that, when saturated, air at 70° F. contains 110 grains of water vapor per pound of dry air. When there are only 43 grains of moisture per pound of 70° dry air, therefore, the air will be only 43/110 saturated, or expressed in percent, we can say that the air is 39% saturated.

This ratio of the actual amount of moisture in air to the amount it could hold at saturation is known as the *relative humidity* of the air. It is a true measure of the dryness of the air, inasmuch as it expresses the ability of the air to absorb more moisture.

Thus, 70° F. air containing 55 grains of moisture per pound of dry air (relative humidity=55/110, or 50%) is much drier than 56° F. air containing 55 grains of moisture per pound of dry air (relative humidity= 55/67, or 82%), for the former can still absorb 55 grains of moisture per pound while the latter can only absorb 12 grains per pound.

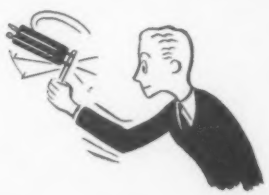
IN ADDITION to the term "relative humidity", there are several other phrases frequently used in comfort cooling discussions. These are:

DRY BULB TEMPERATURE—This is the temperature as read from

the ordinary thermometer, and measures the *degree* of intensity of the heat of the air. The quantity of moisture in the air does not affect this.

WET BULB TEMPERATURE—This is the temperature as recorded by an ordinary thermometer when its bulb is covered with a wet cloth and it is whirled through the air. The water evaporating at the bulb will cause the temperature to be depressed, assuming, of course, that the air is not already saturated. If the air were saturated, no further moisture could be evaporated, and the wet bulb temperature would be the same as the dry bulb temperature.

The instrument most commonly used for determining wet bulb temperature is called a *sling psychrometer* and consists of two thermometers



—one with a cotton stocking which can be moistened—mounted on a panel and affixed to a sling so that they can easily be rotated through the air.

The wet bulb temperature as measured by the sling psychrometer is obviously influenced by the amount of moisture in the air, being at its lowest when the air is absolutely dry and remaining at the dry bulb temperature when the air is saturated.

The difference in temperatures between the dry bulb and wet bulb readings is known as the *wet bulb depression.*

DEW POINT TEMPERATURE—We have seen that air can retain only a certain amount of water vapor, the amount of water vapor becoming greater as the temperature of the air increases.

When a given sample of a mixture

of air and water vapor is cooled, therefore, it will eventually reach a temperature at which it will become saturated with water vapor.

For example, if a mixture containing one pound of dry air and 67 grains of water vapor is cooled from 70 to 56°, it will become saturated, for at 56° air can contain a maximum of only 67 grains of moisture per pound of dry air.

Any further cooling, consequently, will cause moisture to precipitate out as liquid. This temperature at which moisture will first begin to condense out of air as it is cooled is known as the *dew point temperature.*

When air is initially saturated, any drop in temperature will cause precipitation of moisture. The dew point of saturated air, therefore, is its dry bulb temperature, which, as we have seen in the paragraph above, is also its wet bulb temperature.

Thus, dew point means saturation point—and at saturation point, dry bulb temperature, wet bulb temperature, and dew point temperature are the same.

SENSIBLE HEAT: *Sensible heat* is the heat absorbed or given off by a substance in passing from one temperature to another without changing its state; that is to say, without changing from a solid to a liquid or a liquid to a gas.

Thus, if 1 cu. ft. of air is heated or cooled 55° F., 1 BTU of sensible heat is involved. Likewise, if 55 cu. ft. of air are heated or cooled 1°, 1 BTU of sensible heat again is involved.

The BTU is an arbitrary measure of the amount of heat, being defined as the quantity of heat required to raise the temperature of one pound of water one degree Fahrenheit.

LATENT HEAT: *Latent heat* is the amount of heat absorbed or given off by a substance in changing from one state to another without change of temperature.

Thus, when one pound of water at 212° is converted to one pound of steam at the same temperature, 970 BTU must be added to the water. This same quantity of heat is liberated when one pound of steam condenses to one pound of water at 212°.

Likewise, when one pound of water freezes to one pound of ice at 32°, 144 BTU are given off, with a like quantity of heat being absorbed when the ice melts.

When a change of state is from liquid to solid, the term *latent heat of fusion* is used; when the change is from a liquid to a gas, the term *latent heat of vaporization* is used.

SENSIBLE HEAT RATIO: The *sensible heat ratio* represents the ratio of the amount of sensible heat to the total amount of heat.

For example, if we are given a total heat load of 10,000 BTU, 6000 BTU of which is latent heat, the sensible heat ratio will be $\frac{10{,}000-6{,}000}{10{,}000}$ or 40%.

EFFECTIVE TEMPERATURE: We have discussed in detail the effects of temperature and humidity on the feeling of comfort. There is one more factor, however, which is important to human comfort.

This factor becomes evident when we consider the cooling effect of a breeze on a hot day. The breeze literally carries the body heat away.

As a matter of fact, air motion is necessary even when the air is relatively cool, for otherwise a warm and moist blanket of air would be formed around the body, preventing effective heat dissipation.

Fortunately, air is always in motion, even in closed off rooms, due to air infiltration and convection currents caused by unequal temperatures in different parts of the room.

Ordinarily, air moving at velocities up to 25 feet per minute is not felt as drafts when the air strikes the human body. In the summer-time, velocities as high as 50 feet per minute are permissible.

When we refer to still air, we normally mean air which is traveling in eddy currents at velocities of 15 to 25 feet per minute.

In comfort cooling discussions, it becomes desirable to have a scale by which to measure the combined effects of temperature, humidity, and air motion.

This may be accomplished by indexing the degree of warmth or cold felt by the human body in still, saturated air at different temperatures; and then assigning the same numerical value, which we call effective temperature, to all combinations of temperature, humidity, and air motion which produce the same result.

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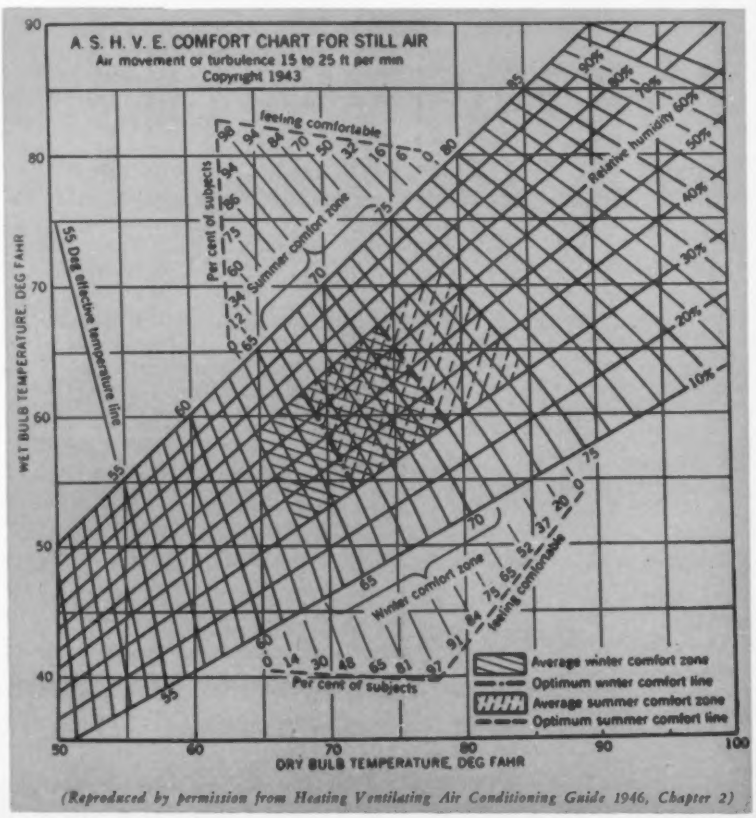

A. S. H. V. E. COMFORT CHART FOR STILL AIR
Air movement or turbulence 15 to 25 ft per min
Copyright 1943
Feeling comfortable
Relative humidity
Per cent of subjects
Summer comfort zone
Winter comfort zone
55 Deg effective temperature line
WET BULB TEMPERATURE, DEG FAHR
DRY BULB TEMPERATURE, DEG FAHR
Average winter comfort zone
Optimum winter comfort line
Average summer comfort zone
Optimum summer comfort line

(Reproduced by permission from Heating Ventilating Air Conditioning Guide 1946, Chapter 2)

Refrigeration ON THE RUN

A TRUCK refrigeration system so simple that it can be installed and placed in operation in just a few hours by any qualified refrigeration mechanic has been assuring proper delivery of meat products handled by Ryan Quality Meats in St. Louis for more than a decade.

Today the Ryan organization operates a whole fleet of trucks equipped with these units, which were first developed 11 years ago by William Ryan, Jr., president of the company, and Alfred C. Ratermann, his associate, in answer to the growing need for some means of providing adequate refrigeration for safe delivery of meats on both long and short hauls in all types of weather and under all types of travel conditions.

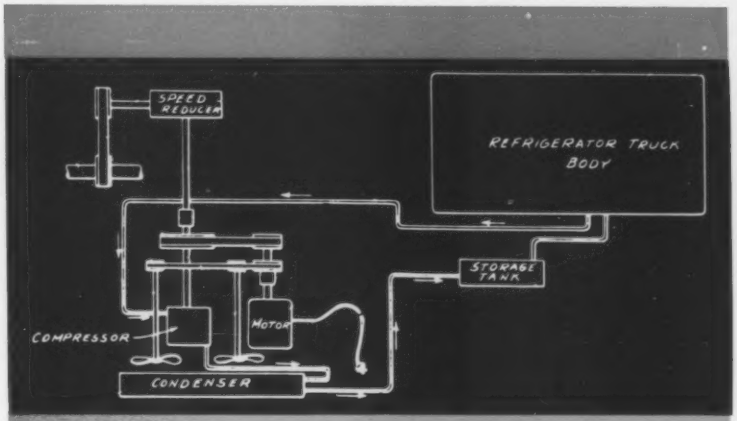
Mr. Ryan and Mr. Ratermann set out to design an efficient compressor unit that could be driven from the drive shaft of a meat truck during the regular daily run, or operated overnight for hold-over with an electric motor (110 or 220-volt) plug-in connection in the garage.

The unit was to be designed in such a way that there would be no fuss or bother involved in the change-over procedure other than merely shutting off the truck motor and plugging the unit in to the garage outlet at night, and reversing this procedure in the morning.

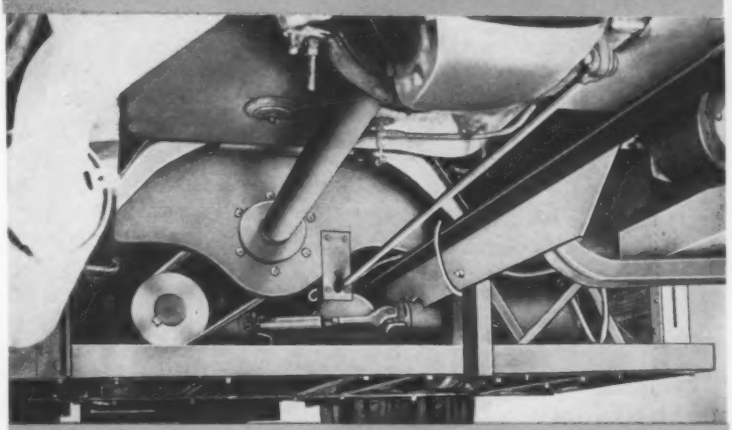
That's the way the unit was designed; that's the way the unit was built. And all Ryan trucks operating today are equipped with this same type of refrigerating mechanism.

These units were operated successfully for eight years with only minor repairs and only the minimum maintenance required of any compressor unit. Then, with the practicability of the units thus demonstrated, patents were applied for and issued.

The unit consists essentially of a compressor, a motor, and the power take-off mechanism. It may be installed on most refrigerated truck bodies within a few hour's time by any good mechanic. Then any qualified refrigeration service man can complete the connections to the truck's lowside equipment through the liquid and suction lines, and the truck is ready for service.



This schematic diagram of the Ryan truck refrigeration system indicates the relative position of the motor, compressor, condenser, storage tank, and speed reducer to the truck body, and shows how they are connected into the system.



This actual photograph of the under side of one of the Ryan trucks shows how power is taken from the truck's drive shaft.

Most Ryan meat trucks employ two "Kold-Hold" hold-over truck plates of the proper size and capacity for the truck, and one small open coil. A quick-action flat plate may be substituted for the coil if desired. The hold-over plates are arranged on the sides, the coil across the front of the truck.

Normal procedure is to plug the unit in to the 220-volt circuit at the garage at night, to build up the hold-over capacity for the next day. In

Continued on page 67

An incentive payment plan based on true profit-sharing principles has boosted the annual dollar volume of this Dayton, Ohio installation and service contracting firm well into the six-figure bracket . . . and it's still going up

PROFIT-SHARING *Pays*

ARE your service men putting forth their best efforts? Are they taking full advantage of every opportunity to increase your sales of new parts and equipment? Do many of them make at least $6,000 for your company each year?

If your answer to all these questions is an emphatic "No!", you'd better keep right on reading. For L. O. Warner, owner of Dayton, Ohio's Refrigeration Service Shop, Inc. can answer them all with a resounding affirmative, and you'll want to know how he does it.

But first let's take a quick look at Mr. Warner's organization.

Located just a few blocks out from the center of Dayton's downtown business district, Refrigeration Service Shop, Inc. has been doing business "at the same old stand" for more than 10 years. In addition to its comprehensive service operations in both the household and commercial fields, the company also sells both new and used refrigeration and air conditioning equipment.

At the present time the firm has 12 men in its service department, including the service manager and the man in the parts department. A separate four-man insulation crew, which is augmented when necessary by the addition of union laborers, handles all construction and insulation work on walk-in coolers, locker plants, and similar installations.

Counting the sales force and the administrative and office personnel, the company's total employee roster numbers 23 persons.

The company's growth has been steady and consistent. Its dollar volume of business has increased regularly year by year. In 1945 the company's dollar volume pushed well into the six-figure bracket, and this year—barring any further and more serious material and supply shortages—Mr. Warner confidently expects to top those earnings by a substantial amount.

The cornerstone of all this business success is the profit-sharing "incentive payment" plan by which Mr. Warner compensates his service men. And here is how it works.

When a service call comes into the Warner shop it is entered on a call slip similar to that used by many service firms. This slip gives the customer's name and address, the make of the equipment needing repair, and the nature of the trouble. Date and

● This facsimile of a work order shows just how the profits to be shared are determined, and how they are split between servicemen and company. ●

PHONE ADAMS 5146

WE SELL AND SERVICE ALL TYPES OF NEW AND USED REFRIGERATION AND AIR CONDITIONING EQUIPMENT HOUSEHOLD AND COMMERCIAL

NIGHTS AND HOLIDAYS AD 9611

Refrigeration Service Shop
INCORPORATED
66 STRATFORD AVE., DAYTON 2, OHIO

Nº 19074

Req. No.

Customer JOHN DOE — Address 80 PATTERSON — Date 4/26/46
City DAYTON — State OHIO — Call No. 34830
Bill to SAME — Address — Inv. No. 26314
City — State — P. O. No.
Complaint WATER COOLED CONDENSER LEAKS
Equipment — Serial No.

MATERIAL

COST	Amount	Part No.	PART NAME	PRICE EACH	TOTAL
31.25	1	J100	CONDENSER	62 50	62 50
4.80	15		SO2	75	11 25
.60	2		3/8" FEM x ¼" MPT	30	1 60
.07					
2.37	1	#13472	3/8" FLARE STRAINER	4 74	4 74
46.31					

SALES PRICE — 107.38
MATERIAL COSTS — 46.31
61.07
MILEAGE — .50
60.57

THIS BALANCE, THE NET PROFIT ON THE JOB, IS SPLIT 45% TO THE SERVICE MAN AND 55% TO THE COMPANY.

Installation / Service / Warranty / Shop / Call Back / T. T.

TOTAL MATERIAL 92.38
Sales Tax
Mileage .50
Time (7 HOURS LABOR) 14.50
TOTAL 107.38

Work Performed INSTALLED NEW WATER COOLED CONDENSER ON UNIT REPLACING LEAKY CONDENSER - ADDED GAS - CHECKED OPERATION
Recommended Additional Work

Serviceman — Customer

ALL SERVICE CASH WHEN RENDERED

time of the call also are noted, as is the name of the service man to whom the call is assigned. Provision also is made for entry of the work order number when the job has been completed.

The service manager then assigns the call to one of the service men. Each of the men carries his own book of work order forms as well as his own price list, so he is prepared to quote the customer a price on any new parts or equipment needed and also to write up the completed job.

When he returns to the shop he turns in to the cashier all work order forms and all payments collected during his trip. After the forms have been recorded they are checked by the service manager and then filed in individual boxes which are maintained for each man.

Mr. Warner's service men are paid twice monthly, and at each pay period the work order forms are collected from the men's boxes and the pay of each man for that period is computed by the company's accountant. This information then is entered upon a separate pay roll sheet for each man, all of which Mr. Warner checks personally in order to keep thoroughly familiar with the firm's service operations.

It is here that the unique aspects of the incentive payment plan become apparent. For instead of paying the men at an hourly rate or on a predetermined salary scale, Mr. Warner figures their payment in the following manner.

Total charges to the customer for both material and labor are added together. Then the actual cost to the company of all parts and materials, together with any mileage charges for distance traveled, are subtracted from this total. The provides reimbursement to the company for its investment in parts and equipment and also compensation to the service man for operating his own car.

The balance then left on the work order, which represents the profit on the job, is split between the service man and the management—45% to the individual and 55% to the firm. Thus the service man contributes his time and effort while Mr. Warner stands the overhead of the business and shoulders all the trials and tribulations of management—and the "take" is split proportionately.

Used equipment sales also are handled in a rather unusual way. All trade-ins automatically become the property of the company, and the net profit on jobs involving trade-ins (except for a few special instances) is figured on the basis of the actual cash amount paid by the customer.

Any traded-in equipment which is in really good shape is repaired or reconditioned by the shop men for resale at a certain stipulated price. On any work orders involving re-sale of this equipment, cost of the equipment is listed at 50% of its specified resale price, and the service man installing the equipment receives his regular 45% cut of the balance.

All traded-in equipment not repaired by the shop is relegated to a stock pile from which any of the service men may draw any units which can be used in jobs which he is handling. He must, however, repair this equipment on his own time.

Continued on page 75

● Mr. Warner personally checks all work orders and pay roll sheets at each pay period with the help of the company's bookkeeper. ●

● The company's service manager assists one of the men in loading a new unit into his car prior to delivering it to a customer. ●

A Star is Born

Brilliant new member of the Green Dragon family of products. It completes the famous Elpeco 3-unit line, produced at one source under one responsibility. It's the

THERMOTRON

AN INSTRUMENT OF EXACTNESS FOR FLOW CONTROL

202

STAR BILLING has been given Thermotrons by Wholesalers everywhere! Ask for them by name. Look for the modern package of gleaming, crystal-clear plastic, with the Thermotron always in full view for inspection.

Thermotrons are stocked by Wholesalers in four models:

MODEL AT-100: *Adjustable (Illustrated).*
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MODEL AE-400: *Automatic Expansion.*

Thermotrons are jam-free, field proven, performance tested. They are friction-free because there is no sliding contact between moving parts. They are air-tight, and all gaskets have been eliminated. Settings remain fixed. If you are looking for satisfaction in flow control, look for Thermotrons.

Descriptive literature may be obtained from your Wholesaler or direct from us.

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ELPECO
GREEN DRAGON

"LIQUID" Refrigeration Systems

By J. G. Praetz
General Service Manager
Liquid Carbonic Corp.

Part 6 — General installation instructions for Bobtails and other soda fountain refrigeration equipment.

IT IS important that proper size condensing units are selected for the fountain and other refrigerated fixtures. This will be determined not only by the length of the fountain unit but by the water cooling load and whether another refrigerated fixture such as a cold food unit (salad-sandwich unit) is duplexed with the soda fountain.

A condensing unit too small for the load will result in long or continuous operation and possibly soft ice cream. An oversize condensing unit will be difficult to adjust for temperature and control of water cooling. Condensing units that are too large also have a definite tendency to short cycle on light load conditions which overheat the motor and shorten machine life.

Pulley sizes should be checked carefully. Too large a pulley may overload the motor at the normal operating back pressures, while too small a pulley may cause excessive operating costs through long partial load operation of the motor.

Check Pulley Sizes

For ice cream cabinets or ice cream storage units, use "low" back pressure pulley. For soda fountains (ice cream and water cooling) and Bobtails with water cooling sections, use "medium" back pressure pulley. Bobtails duplexed with an ice cream cabinet likewise should be equipped with a "medium" pulley. Instantaneous water coolers and Bobtails equipped with instantaneous type water coolers should be equipped with "high" back pressure pulleys.

The "high," "medium," and "low" pulley sizes vary for each horsepower size and manufacturer's condensing unit. Check with the manufacturer's condensing unit capacity data sheets to determine the correct pulley size for each back pressure range.

Generally better temperature control and less service trouble will result if the fountain unit is connected to its own condensing unit, with a second condensing unit being supplied to refrigerate cold food units (salad) and refrigerated cabinets (back bar base), especially if the fountain load is heavy.

If the condensing unit is air cooled, install it in a cool location where there is plenty of air circulation. Air cooled condensing units should be installed with the condenser at the back, or next to the wall, and located so that the machine will be accessible for servicing on all sides. Allow at least 6" between the condenser and the wall to permit brushing down and cleaning the condenser fins.

Locating Condensing Unit

Do not locate an air cooled condensing unit in a confined unventilated space (closet), near boilers or other heating equipment, or in hot kitchens.

If the machine is water cooled, a location should be chosen that will not be subjected to freezing temperatures in the winter time, to prevent any possibility of damage to the water cooled condenser. If this is not possible, suitable protection must be provided.

Locate the condensing unit as close as possible to the fountain or refrigerated fixture, preferably in the basement directly under the floor at the fixture location. Use 3/8" and 5/8" copper tubing for connecting the machine to fountains. Use 1/4" and 1/2" on individual small refrigerated fixtures and Bobtails; 3/8" and 5/8" on instantaneous coolers.

Install a permanent silica gel de-

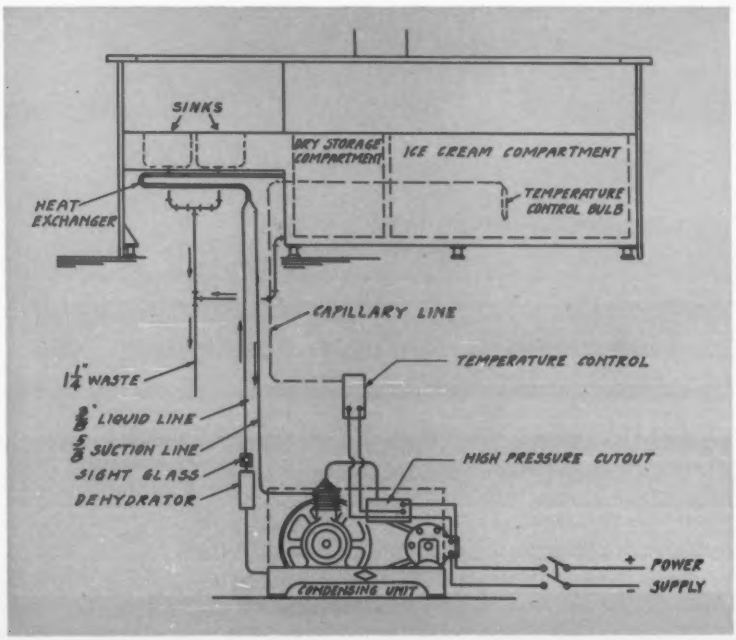

Fig. 20—Diagram showing soda fountain refrigeration, electrical, and waste connections

hydrator of ample size in the liquid line close to the machine. Install a sight glass (liquid line indicator) on the *outlet side* of the dehydrator, both vertically if possible.

The dehydrator (until saturated with moisture) will keep the F-12 refrigerant free from moisture, preventing refrigeration trouble. The sight glass will enable the service engineer to readily check for shortage of refrigerant. It also enables him to determine when he has sufficient refrigeration in the system at the time of initial charging.

Exercise special care in making flares or sweating refrigeration tubing to insure perfect joints and freedom from leaks. After cutting the tubing to the required length, clean out any chips or fillings from inside the tubing.

In cutting off tubing, hold the end down so that chips will fall out and not into the pipe. Remove any burrs from inside the tubing before flaring. Flare carefully to avoid splitting.

In tightening flare nuts on refrigeration tubing, particularly the 5/8" size, a tighter joint can be obtained, with less possibility of damaging the flare, by putting a drop of oil on the back side of the flare so that the nut in tightening has a film of oil between it and the tubing flare.

Every installation and unit must be thoroughly checked for refrigerant leaks. This includes all condensing unit gasket-sealed surfaces, valve caps, and all tubing connections. A halide torch or a "Presto-lite" leak detector are the best and most practical devices for locating F-12 leaks.

Use only anhydrous methyl alcohol in halide leak detectors. The flame changes to green with the slightest presence of Freon. The hose or detector attachment of the torch should be held close to and below every point where a leak is possible.

Do not leave a unit or installation until every trace of "green flame" and the cause has been eliminated. On new installations leak tests should be made with a minimum of 40 lbs. pressure on the low side of the system.

Check all connections and joints within the fixtures as well as all line connections. While refrigerated fixtures are completely factory tested for leaks, vibration in transit or handling may sometimes develop a loose connection.

To facilitate locating leaks in re-

Continued on page 51

CHECK LIST	INSTRUCTIONS
General installation instructions on condensing units as issued by the National Bureau of Standards, Washington, D. C.	
Location	Place condensing unit where it has a free circulation of cool air. If a water-cooled unit, do not install where it will be subjected to freezing temperatures.
Motor Lubrication	Lubricate motor bearings before starting open type condensing units. Use only lubricant of the grade recommended by the motor manufacturer.
Electrical Specifications	Check name plate on motor and controls to be certain that motor is being connected to circuit suppling the correct current.
Line Protection	Use line fuses or fusetrons of proper rating (See National Electrical Code.)
Pulley Alignment	Make certain that pulleys on open type units are in alignment and that belt is adjusted to proper tension.
Compressor Rotation	Check direction of rotation of compressor (open types).
Cleaning Evaporator Lines	Be sure evaporator and lines are dry and clean. If they have stood open, blow out with CO_2.
Strainer	The use of a liquid strainer for protection of the system is recommended.
Drying Evaporator Lines	Use only suction or liquid line dryers to remove moisture. Use dryers which have been recommended by the condensing unit manufacturer.
Remove Moisture-Laden Air	Draw a deep vacuum on the entire refrigeration system before charging with refrigerant, using a vacuum pump designed ior that purpose, *unless* the unit has been given a holding charge.
Compressor Lubrication	Check the compressor oil level after the condensing unit has operated a few hours, and add oil as required to make up for that in the lines and evaporator. Use only clean, dry oil in sealed cans and of a type approved by the manufacturer of the condensing unit.
Leak Test	Test all joints carefully for leaks. Make certain that the entire system is gas tight.
Expansion Valve Adjustment	Check expansion valve and readjust if necessary to prevent liquid refrigerant from returning to the compressor.
Refrigerant Requirements	Use only clean dry refrigerant as specified on the unit nameplate. If the refrigerant is changed as approved by the unit manufacturer, remove the old refrigerant and compressor oil; put in new approved oil and pump a deep vacuum before charging with new refrigerant.
Installation Recheck	Before leaving the installation as complete, recheck temperature, valve settings and general operation, using gages. See that service valve caps, control covers and other parts are in place. Also recheck pressures, compressor oil level, and motor oil.
User Instructions	Instruct the customer or user in the care and operation of the unit; how and when to oil the motor; how to replace fuses or reset the overload.

These two men, John G. Toennes (left) sales manager, and L. E. Woodman, owner of Woodman Engineering Co., find that knowing your market pays off in water cooler merchandising.

KNOW-HOW *plus* SHOW-HOW

Boosts Water Cooler Sales

By L. H. Houck

THERE are almost as many prospects for electric water coolers as there are business places and industrial plants in your town—but the job of selling water coolers is anything but a push-over.

What's the main stumbling block? In the opinion of John G. Toennes, sales manager for Woodman Engineering Co., Jefferson City, Mo., a firm that has made a study of the problems involved in the merchandising of this and other packaged commercial refrigeration products, it's this: lack of information that will enable the salesmen to show the prospect how using the product will benefit his business.

As it installs water coolers in various types of business, industrial and institutional locations, Woodman Engineering Co. is gathering sales ammunition which it expects will ease the path to sales as volume on this item advances.

Not all sales are so difficult, of course. Schools, hospitals, public buildings and some office buildings are ready prospects for water coolers —and these sales are comparatively easy to make. Once you get past these prospects, however, you're in tougher territory.

Banks are a relatively good prospect for water coolers, Mr. Toennes finds. His firm has sold a number throughout the state; he says they're usually progressive enough to see the advantage of installing one in the lobby for customers' use. Another new field which the company is exploring is apartment houses—a logical user of one or more on each floor, in Mr. Toennes' opinion.

Hardest nut to crack is the retail merchant. Mr. Toennes finds it hard to convince these prospects that a water cooler will pay dividends. Some point out, such as drug stores with soda fountains, that such a cooler would cause loss of fountain business. To offset this all you have to do is to count the free glasses of water put out on a hot day.

Mr. Toennes believes that it can be made into a selling feature for a drug store. The fountain can be situated so that merchandising displays can be made around it. Displays may be changed to fit the seasons and the best merchandise offers.

Water drinkers, winter and summer, would become regular customers. Regular customers would become water drinkers. All would be exposed to additional merchandise display that would increase the store's sales volume.

Woodman Engineering expects to be able to set up such a "test job" soon, to check on the results and experiment with merchandise displays.

Information like this should make for figures that will help sell water coolers—for whenever you can show a merchant cold and unbiased figures

proving that some of the money he is spending is coming back, much of his sales resistance is lowered.

Cost of installation hinders many sales—but Woodman Engineering has hurdled this problem, for the most part, by handling the complete installation, plumbing and electrical, through its own departments. In fact, control of all phases of installation, as well as sales, is just about a "must" to real merchandising success in pack-

Continued on page 71

FILL UP WITH THE *Original* OILS

SUNISO REFRIGERATION OILS . . . Choice

of Leading Manufacturers of Refrigerating and Air-Conditioning Equipment

Actual service on the job has proved Suniso oils to be outstanding in performance for refrigeration and air-conditioning equipment.

The real testimonial to Suniso quality is that these crystal-clear pale oils are used by leading manufacturers in their new units as they come from the factory.

Suniso oils have extremely low pour-points and the greatest possible resistance to reactive change when in contact with Freon, methyl chloride, and other types of refrigerant.

Under extreme operating conditions, they show high stability and resist formation of harmful sludge or detrimental acids. They have extremely low wax separating tendencies, and thus eliminate operating difficulties due to excessive wax formation.

See your jobber for the full story of Suniso oils, custom-made for all types of refrigerating compressors.. Or write us direct for 52-page illustrated book.

SUN OIL COMPANY • ***Philadelphia 3, Pa.***

Sponsors of the Sunoco News-Voice of the Air—Lowell Thomas

SUN

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INDUSTRIAL PRODUCTS

Two new field engineers have been named by Henry Valve Co. **Charles C. Allen,** recently discharged from the Navy, will cover the Ohio territory, including nearby parts of Pennsylvania, New York, Kentucky, and West Virginia. **Norman Beals** will

Mr. Allen

Mr. Beals

work with Henry's eastern manager, C. W. Hudzeitz, covering the eastern states and New England. Before the war Mr. Allen was a refrigeration and air conditioning service engineer for Frigidaire and a field engineer for Alco Valve Co. Mr. Beals, prior to joining the Henry organization, was a design engineer for manufacturing concerns in St. Louis, Dayton, and Brooklyn.

●

Appointment of **John B. Borah** as head of its flow control instrument division has been announced by Electric Power Equipment Corp. Mr. Borah joined the Elpeco organization on January 1, after having devoted more than 10 years to development engineering in this field.

●

Nelson F. Wilmot has been appointed Chicago district sales manager and **Merle S. Clark** St. Louis district sales manager of The Mathieson Alkali Works. Both Mr. Wilmot and Mr. Clark have been with Mathieson since 1931.

J. B. Blanton has been named assistant general sales manager and **Roy Hert** supervisor of advertising and sales promotion for the Domestic Appliance Division of Pressed Steel Car Co., Inc. Mr. Blanton formerly was head of sales, merchandising, and development engineering for Management Engineering Co. Mr. Hert has been engaged in appliance sales promotion for several years, having been connected at one time with both Westinghouse and Frigidaire.

●

Herbert Livingston Laube has been elected president of Remington Corp., manufacturer of packaged air conditioning equipment. Mr. Laube has resigned from Carrier Corp. to assume direction of the Remington firm, with which he has been associated in an advisory capacity for eight years. With Carrier since 1927, Mr. Laube since 1942 had been vice president responsible for the company's engineering, research and new product development.

●

Willis A. Siegfried, formerly sales manager of Superior Valve & Fittings Co., has been advanced to the post of vice president in charge of sales for that organization.

●

Richard R. Seibel has resumed his position as works manager of the Defiance, Ohio plant of Lynch Mfg. Co., Toledo, after more than four years in the army. Mr. Seibel joined Lynch in 1939 and entered the army in 1941.

●

Lloyd MacGann has been promoted to branch manager of the Baltimore office of Minneapolis-Honeywell Regulator Co. Mr. MacGann, who joined the M-H organization in 1937, has been assigned to the Boston branch since 1942.

●

J. A. Strachan has been named sales manager of the original equipment division of The Weatherhead Co. In this position he will direct sales of all Weatherhead products to original equipment manufacturers in the refrigeration, air conditioning, railroad, marine, chemical, food and beverage processing, and dairy equipment fields. D. W. Holmes has been named to replace Mr. Strachan as sales manager of the standard parts division, covering all products sold through distributor channels.

●

J. H. George, formerly in the sales department of Westinghouse Electric Co., has been appointed sales manager of the Philadelphia district for Deepfreeze Division, Motor Products Corp.

●

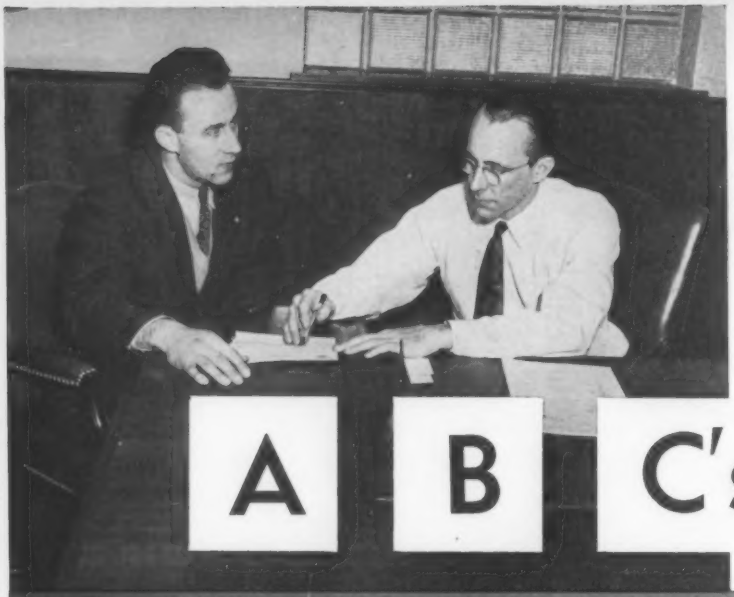
Two new district managers have been appointed for the "Oasis" water cooler division of Ebco Mfg. Co. **John P. Rainbault** will supervise

Mr. Gray

Mr. Rainbault

sales in the Pacific Coast states of California, Oregon, Washington, and Nevada, with headquarters in San Francisco. **Ronald D. Gray** will do the same in Florida, Alabama, Georgia, Mississippi, Tennessee, and the Carolinas, with headquarters in Jacksonville Beach, Fla. Mr. Rainbault formerly was manager of the air conditioning and commercial refrigeration department of General

Continued on page 62



Here is a step-by-step outline to guide employers in hiring war veterans for on-the-job training under the provisions of the "GI Bill of Rights"

A B C's of ON

The veteran-trainee interviews his new employer, and discusses with him the various points to be included in his training program . . .

. . . he sees how service records are kept, and calls handled . . .

. . . he is introduced to the superintendent of the shop . . .

SURE, Mr. Employer. If you've been reading your newspaper lately, flipping through the pages of your favorite magazine, or even listening to the radio, you are no doubt aware of the existence of the on-the-job training program being sponsored by the Veterans Administration under the "G. I. Bill of Rights."

Vaguely you know that it's some sort of an "earn while you learn" scheme set up by the government to help World War II veterans, disabled or otherwise, get settled back into civilian life and a civilian occupation. And as such you're all for it. You probably feel that it's a fine thing for the vets, and quite all right for those companies which are in a position to be somewhat charitable in their employment practices.

But do you know specifically just what this program does offer to the employer, large or small, as well as to the veteran? Do you thoroughly understand that you, as an employer, have certain rights and privileges under this plan just as does the veteran? Do you fully realize that you stand to gain certain very definite advantages, both in dollars and cents and otherwise, by entering into a job-training agreement with the VA?

If you don't, then this article is meant for you. Whether you are a manufacturer, distributor, dealer, or wholesaler of refrigeration equipment, or the owner of a firm which engineers, installs, or services such equipment, you may well learn by reading this article how you can make

. . . he gets acquainted with the other fellows with whom he will work . . .

a sound and profitable investment in your business future.

But let's start at the very beginning. And let us suppose, just for the purpose of a specific example, that you are the owner of a refrigeration service and installation contracting firm.

There are three principal ways in which you, as an employer, might

THE-JOB *Training*

come in contact with this combined training-employment program.

First, the VA might send a representative out to discuss the matter with you; second, a veteran interested in your line of business might approach you directly and attempt to "sell himself" to you under the plan; third, you might hear of the program through other channels, decide it's a pretty good thing, and take the initiative yourself by contacting the VA.

The VA, of course, is always on the lookout for employers with which to place veterans. And in the case of disabled vets, the Administration handles 100% of this employer contact. Local representatives are continually lining up new fields of endeavor, and new firms in those fields, as outlets for the constantly increasing wealth of manpower being discharged from the armed services. They attempt to work out with each industry and each employer an integrated program for on-the-job training.

Veterans who are not disabled are often encouraged to make these employer contacts for themselves. It is felt that this personal approach frequently gives the veteran a desirable feeling of self-confidence and a better basis for mutual understanding with his prospective employer.

And of course many employers, learning of the plan through other sources and feeling that it might hold interesting possibilities for their own businesses, have contacted their local VA offices to obtain more specific information. Locations of the various

. . . he draws his initial supply of tools, for which the government pays up to $100 . . .

. . . and starts off his first day of work by learning the routine of "punching the clock."

field offices of the VA are listed elsewhere in this article.

No matter how the original contact is made, the next step—if you are still interested in cooperating with the program—is to get your particular company certified as an "approved" institution for on-the-job training. This certification is tendered by the State Department of Education, upon proof that your organization is "qualified and equipped" to furnish the proposed training.

This means that you must show:

(1) that the training program is being established for a recognized specific occupation which requires the acquisition of certain job knowledge and job skills;

(2) that you will place the veteran under the instruction and supervision of a fully trained and competent worker who has demonstrated his ability to instruct others;

(3) that the schedule of on-the-job experience is organized in a logical sequence and includes the approximate time to be spent on each phase of the training.

(4) that your establishment has adequate facilities for providing instruction;

(5) and that you yourself will supervise, examine, and keep records of the veteran's progress.

Once you have definitely decided to go along with the job-training program you must then sign the "certificate of eligibility and entitlement" and the "on-the-job training certificate" presented by each of the veterans whom you propose to employ. These agreements, which seal your end of the bargain as well as the trainee's, state your willingness to enter into the program, to prepare a detailed training schedule for each veteran whom you employ on this basis, to train the veteran along the lines laid down in this schedule, and to report periodically to the VA the amount of wages paid the veteran and progress of his training and work.

As for the details of the training program, you may either set these up yourself or work directly with one of the VA's own training officers. In either case, however, the training program must be set down in written outline form and be approved, by the State Board of Education. A special form for this is generally provided by the local Board of Education.

It is important to note that it is necessary for you to obtain approval for each specific job for which you undertake to train a veteran. For instance, if your firm has been approved as a training medium for refrigeration service mechanics, that does not mean that your company automatically is authorized to train men for other occupations, such as bookkeeper, stock clerk, etc. A separate program must be established and approval obtained for each position for which you may wish to train a veteran.

Once your company has been approved as a training establishment for service men, however, you may then proceed to hire and train as service men as many veterans as you choose, providing that you sign each new trainee's certificates of eligibility and job-training and then proceed to keep the necessary records and submit the required reports on each new man. This seeming duplication is merely a matter of keeping each veteran's record complete.

Training Program Outlined

As for the training program itself, it should include:

(1) a description of the job based on the United States Employment Service "Job Dictionary", copies of which are available in all local U.S.E.S. offices;

(2) an outline of the training schedule by weeks and months, including an itemization of what the veteran needs to know and how long it should take him to learn each specific phase of the job;

(3) a description of training facilities, including equipment, instructing personnel, and provisions for the acquisition of job knowledge and related information, including any recommendations for home study, correspondence, night school courses, or other outside educational activities.

(4) a description of your plan for paying the veteran during his training period, outlining the beginning rate, progressive increases scheduled throughout the training period, and the wage which he will be earning at the completion of his training. This last-mentioned wage should be the established entrance rate for a trained worker in that particular category.

Once this training schedule is prepared and approved, both you and the veteran should be all set to carry through with the program.

(The second and final section of this article will appear in the July issue and will detail the advantages to the employer of the on-the-job training program for war veterans. Don't miss it! Learn how you, too, can help yourself by lending a helping hand to some worthy ex-GI who wants to learn your business.)

VA Offices

Operation of the on-the-job training program for veterans has been decentralized to the various field stations of the Veterans Administration. At least one of these offices, as you will note from the list below, is located in each of the several states with the exception of Delaware, which is served by the Philadelphia, Pa. office. For further information address the Manager, Veterans Administration, nearest your location.

Albuquerque, New Mexico
Atlanta, Georgia
Baltimore, Maryland
Batavia, New York
Bay Pines, Florida
Boise, Idaho
Boston, Massachusetts
Cleveland, Ohio
Cheyenne, Wyoming
Columbia, South Carolina
Dayton, Ohio
Dearborn, Michigan
Denver, Colorado
Des Moines, Iowa
Fargo, North Dakota
Fayetteville, North Carolina
Fort Harrison, Montana
Hines, Illinois
Huntington, West Virginia
Indianapolis, Indiana
Jackson, Mississippi
Jefferson Barracks, Missouri
Kansas City, Missouri
Lexington, Kentucky
Lincoln, Nebraska
Little Rock, Arkansas
Los Angeles, California
Lyons, New Jersey
Manchester, New Hampshire
Minneapolis, Minnesota
Montgomery, Alabama
Murfressboro, Tennessee
Muskogee, Oklahoma
Newington, Connecticut
New Orleans, Louisiana
New York, New York
Philadelphia, Pennsylvania
Pittsburgh, Pennsylvania
Portland, Oregon
Providence, Rhode Island
Reno, Nevada
Roanoke, Virginia
Salt Lake City, Utah
San Francisco, California
Seattle, Washington
Sioux Falls, South Dakota
Togus, Maine
Tucson, Arizona
Waco, Texas
Washington, D. C.
White River Junction, Vermont
Wichita, Kansas
Wood, Wisconsin

REFRIGERATION INDUSTRY *News*

REMINGTON CORP. AIMS AT EXPORT OF AIR COOLERS

Export sales of packaged air conditioning units to customers in tropic countries is the immediate goal of Remington Corp., according to Herbert Livingston Laube, newly elected president.

On June 1 the company will take possession of a factory in Cortland, N. Y. and prepare it for autumn manufacture of its line of self-contained cooling equipment. This three-story plant has 25,000 sq. ft. of floor space, and formerly was the property of the Con-O-Lite Co.

Several decisive factors are behind Remington's plans to produce exclusively for hot-climate countries, according to Mr. Laube. The predecessor company, Remington Machine Co. of Wilmington, Del., marketed more than half its products overseas during the years after its entrance into the refrigeration equipment field in 1889.

The company marketed a four-unit line of room and store air conditioners through foreign distributors, mainly in the Far East, from 1937 until the war began. These distributors already have placed substantial orders for new versions of these pre-war units, Mr. Laube reports.

On the basis of these orders, the company anticipates an almost immediate volume of $400,000 among the tropical buyers to which it will cater. The company will tailor its equipment to the needs of this particular market by supplying air conditioners with markedly greater cooling and dehumidifying capacities than units designed primarily for domestic needs.

Also out of deference to its foreign buyers, the units will be designed to operate at full capacity on electrical current of virtually any characteristic.

Fred Stidfole has been named plant manager for Remington. Mr. Stidfole had been associated with Carrier Corp. since 1934 in the export construction, export service, and production departments. He traveled extensively for Carrier in Europe, South Africa, and South America. He was manager of Carrier's manufacturing laboratory when he resigned early this year to join Remington.

HOTEL LINE-UP FOR THE SHOW

In response to a number of requests for information on "who'll be where" during next October's All-Industry Show in Cleveland, here are the headquarter hotels for the various associations:

REMA—Hotel Cleveland.

REMA — Hotel Statler.

RSES—Hotel Hollenden.

Locker Association — Hotel Carter.

Refrigeration Contractors—Allerton Hotel.

Reservations are being handled through the individual associations, and you are advised to get in touch with your own group's headquarters office at once if you want to arrange for hotel space through it.

RECORD HOME FREEZER ORDER?

Benjamin Gross (fourth from left), president of Gross Distributors, Inc., New York, hands what he describes as "the largest single order ever placed by a distributor in the history of the frozen-food cabinet industry" to Harold S. Schaefer, president of Schaefer, Inc., Minneapolis manufacturer of home and farm freezers, as other members of the two cooperating organizations look on.

FIRE TOTALLY DESTROYS BROMANN PLANT; REBUILDING TO COMMENCE AT ONCE

Fire of undetermined origin destroyed the plant of Albert H. Bromann, Jr., Schiller Park, Ill., manufacturer of commercial refrigeration equipment, on the afternoon of May 4, with damage estimated at more than $200,000.

In addition to the buildings, machinery, stock, raw materials, production equipment and office records, the fire also destroyed the company's entire mailing list and record of orders for new refrigeration equipment. Some 5000 names were involved on these records, according to Albert H. Bromann, Jr., president.

To all those persons who had entered orders for new equipment with the company, or who were on the company's mailing list to receive notification of new products and other information, Mr. Bromann suggests that they re-enter their names with the company as soon as possible. This will enable the company to bring its records reasonably up to date, and to establish insofar as possible the status of its orders for new refrigeration equipment.

Such notification should be addressed to Albert H. Bromann, Jr., Schiller Park, Ill. The company has set up temporary offices in a building adjacent to the burnt-out plant.

According to Mr. Bromann, the fire broke out shortly before 3 p.m. on May 4, shortly after the last employees had left the plant for the day. Firemen were hampered by a high wind in their efforts to fight the blaze.

The plant will be rebuilt, with completely new and modern production equipment, and construction is expected to be completed within three to four months. Meanwhile the company is continuing to accept deliveries of materials which it has had on order, since ample storage facilities are still available on the plant property.

In this way, the company expects to have an adequate backlog of materials on hand by the time it is ready to resume production, so that the plant can start up on a full-scale basis and begin filling orders promptly when it gets back to work.

CINCH CORP. BUYS ELECTRICAL FIRM

Purchase of the Howard B. Jones Co., Chicago manufacturer of electrical connecting devices, by Cinch Mfg. Co. has been announced by Lester W. Tarr, president of the Cinch company. The plant will be known as the Howard B. Jones Division of the parent organization, and will continue the manufacture of plugs, sockets, terminal strips, etc.

Key personnel of the Jones organization have been retained. Cary Wilson, Cinch vice president, heads the manufacturing activities of the new organization as general manager.

Cinch products will continue to be made at 2335 West Van Buren Street. All inquiries and orders for Jones products should be directed to 2460 West George Street.

CRIDER CO. TO MAKE COMPRESSOR LINE WITH 2-STAGE UNIT

A three-model line of fractional-horsepower hermetic compressors, including a two-stage ¼-H.P. unit for low temperature applications, is scheduled for production October 1 by Crider Engineering & Mfg. Co., Lima, Ohio.

A new company, the Crider firm has been organized by T. G. Crider, who recently resigned as product engineer of Carrier Corp.'s package unit division. Associated with him is H. A. Crider, Sr., who will be vice president and Secretary-treasurer.

Besides the two-stage compressor, which is designed for both F-12 and F-22 operation, single stage ¼-H.P. and ⅓-H.P. Freon-12 compressors are slated for initial production this fall.

The two-stage unit will have no condenser fan, being designed for static operation at 0 to -25° F. suction temperature. The single stage units will be produced for 0 to 25° F. suction temperature.

All three units will be available as compressors alone or in complete condensing unit assemblies, according to Mr. Crider.

The company's plans call for three additional models next year—a ⅓-H.P. two-stage machine for both F-12 and F-22, and single stage units of ½ and ¾-H.P. capacities.

STERN BUYS OUT PRATT INTEREST IN S.F. FIRM

Harold G. Stern, president of Refrigerative Supply, Inc., Seattle, and Gerald S. Robinson, formerly vice president of Pacific National Bank of Seattle, have purchased the interest of Clarence F. (Sandy) Pratt and Mrs. Pratt in California Refrigerator Co., San Francisco parts wholesaler firm.

Mr. Robinson has moved to San Francisco and will assume active management of the company. The firm will be operated independently and not as a branch of Refrigerative Supply, according to Mr. Stern.

8 NEW PRESTELINE OUTLETS NAMED

Eight new distributors have been named to handle the "Presteline" brand of household appliances being produced by the Domestic Appliance Division of Pressed Steel Car Co., Inc. Chicago. These new distributors are:

Cumberland Sales Co., Inc., Nashville, Tenn.; Shobe, Inc., Memphis, Tenn.; M. D. Larkin Distributors, Dayton, Ohio; F. O. Carpenter & Son, Columbus, Ohio; United Distributors, Inc., New Orleans; Gulf States Distributing Co., Birmingham, Ala.; Major Appliance Corp., Boston; Eddy & Co., Providence, R. I.

THE SHAPE OF THINGS TO COME?

The "console type" refrigerator built in beneath the continuous work surface at the right of this modern kitchen is just one indication of the trend appliance design may take in coming years. This refrigerator was built by Servel, Inc. especially for the "Post War House" constructed in Los Angeles by the Fritz B. Burns Research Division. The young lady is singing star Gloria Warren.

SALEM ENGINEERING ADDS NEW OUTLETS

The refrigeration division of Salem Engineering Co., Salem, Ohio, has announced the recent appointment of three new distributors for its "automatic" locker plants: C. F. Mohr Associates, Aurora, Ill.; Askew Lockers, Inc., Nashville, Tenn., and the Earle E. Brown Organization, Los Angeles, Calif.

WISCONSIN RSES OFFICERS NAMED

A. L. Robertson, Madison, was elected president of the Wisconsin state association of Refrigeration Service Engineers Society at the organization's recent meeting.

Ernest H. Mueller, Appleton, was named vice president; Walter C. Bullis, Racine, was elected secretary; George P. Kosholiek, Stevens Point, treasurer; H. S. Sargent, La Crosse, sergeant-at-arms; and Lee A. Miles, Madison, chairman of publicity.

Directors, in addition to the officers, are: Gaylord Randall, Rice Lake; Paul A. Hagenau, Park Falls; J. L. Coates, Rhinelander; Richard Plansky, Thorpe; and John A. Kleinkeinz, Wausau.

CORNELIUS ENTERS HARDWARE FIELD

Establishment of a new division for the manufacture of refrigerator hardware has been announced by the Cornelius Co., Minneapolis. C. J. Seiber, originator of Seiber Refrigerator Hardware and for 20 years associated with Arcade Mfg. Co., has been named to head this new division.

Among items scheduled for production by the Cornelius organization are hinges and locks for home freezers, cold storage doors, coolers, reach-in boxes, vegetable cases, meat cases, and beverage coolers.

NEW LOCKER PLANT PLANNED IN GA.

F. D. Garrard and D. C. Morris have made plans for the erection of a modern frozen food locker plant in Vidalia, Ga. The 83 x 100-foot building will contain 600 lockers, in addition to cold storage space for a carload of fruits and vegetables. The plant will also handle retail sales of fruits, vegetables, meats, and sea food. Total investment will approximate $100,000.

REWA NOTES

N. O. Nelson Co. has announced the opening of a branch at 690 Linden Ave., Memphis 1, Tenn., with W. C. Easley as manager. The Nelson company also has opened a branch at Pueblo, Colo. (122 E. River St.), with M. L. Nessen as manager.

* * *

Allied Parts Co. is the new name of Allied Parts Co., Dayton, Ohio, wholesaler. R. E. Warner is Dayton store manager, and Vern Kautt is manager of the Lima, Ohio, store. Arnold W. Iams is now sales manager of the company, and H. S. Grube is purchasing agent for both locations.

* * *

Arbell Refrigeration Supplies has announced a change in name to G. C. Armour Co., and has moved into a new location at 720 Belmont Ave., Fresno, Calif. Jack D. Skotland has been made a junior partner in the company.

* * *

Lee Equipment Co. is the new firm name of Lee-Sparling Co., Detroit. The company is located at 5422 Hamilton Ave.

* * *

Howard H. Haselwood has returned from active service with the U. S. Navy and has resumed management of Howard Supply Co., Wichita, Kan.

* * *

Mason Supply Co., with headquarters in Columbus, Ohio, has opened a new branch store in Charleston, W. Va., at 715 Virginia St., reports New Mason, president. Manager of the new branch is Ralph Parker.

* * *

N. O. Nelson Co. has announced the opening of a branch store at 380 W. Second South St., Salt Lake City, Utah.

BENTLEY HAS OWN CONSULTING FIRM

James A. Bentley has resigned as vice president of Carrier Corp. to establish his own industrial consulting firm in New York City. Carrier will be one of his clients.

Mr. Bentley had been a Carrier vice president since 1931, and formerly headed the company's international division. Recently he had been in charge of expanding Carrier's manufacturing activities.

PLANS FOR SHOW PROGRESS

K. B. Thorndike, chairman of the show committee, and H. F. Spoehrer, REMA president, look over the floor plan for the All-Industry Exposition to be held in Cleveland next October.

★ ★ ★

More than 100 companies engaged in the mechanical refrigeration, air conditioning, and frozen food locker industry already have contracted for space in the industry's first complete postwar exposition to be held October 29 to November 1 in the Cleveland Public Auditorium, according to K. B. Thorndike, chairman of the show committee.

Known as the Fourth Annual All-Industry Refrigeration and Air Conditioning Exposition, the show will occupy four exhibition halls with a total of 75,000 sq. ft. of floor space.

The list of exhibitors, as of May 1, included the following 105 names:

Acme Industries, Inc., Alco Valve Co., All-American Meat & Bone Cutter Co., All-Steel-Equip. Co., Amana Society, American Coils Co., American Injector Co., Ansul Chemical Co., Automatic Products Co., Baker Ice Machine Co., Inc.

The Biro Manufacturing Co., Bonney Forge & Tool Works, Earl E. Brown Organization, Brunner Manufacturing Co., Bundy Tubing Co., Bush Manufacturing Co., Business News Publishing Co., D. R. Card Co., Carrier Corp., Chicago Seal Co.

Container Corp. of America, Coolstream Corp., Copeland Refrigeration Corp., Cordley & Hayes, The Cornelius Co., Curtis Refrigerating Machine Div. of Curtis Manufacturing Co., Cutler-Hammer, Inc., The Davison Chemical Corp., Day & Night Manufacturing Co.

The Dayton Rubber Manufacturing Co., Detroit Lubricator Co., Dole Refrigerating Co., E. I. duPont de Nemours & Co., The Ebco Manufacturing Co., Electric Power Equipment Corp., The Electrimatic Div. of The Simoniz Co., Feddera-Quigan Corp., Food Locker Equipment Co., Frigidaire Div. of General Motors Corp.

Frosted Food Field, Inc., General Controls Co., General Electric Co., L. H. Gilmer Co. Div. of U. S. Rubber Co., Griffith Laboratories, Heat-X-Changer Co., Inc., Henry Valve Co., Ideal Cooler Corp., The Imperial Brass Mfg. Co., Jamison Cold Storage Door Co., Jarrow Products.

Kerotest Mfg. Co., Kinetic Chemicals, Inc., Kold-Hold Mfg. Co., Kramer Trenton Co., Lehigh Foundries, Inc., Lily-Tulip Cup Corp., Lindley Box & Paper Co., Locker Publications Co., Lynch Mfg. Corp., A. E. Macadam & Co., Inc., Marathon Corp.

Marlo Coil Co., Master Blt Refrigeration Mfg. Co., Master Mfg. Corp., Mayflower Products, Inc., McIntire Connector Co., McQuay, Inc., Midwest Metal Stamping Co., Mills Industries, Inc., Minneapolis-Honeywell Regulator Co., C. F. Mohr Associates.

Mueller Brass Co., Nash-Kelvinator Corp., (Kelvinator Div.), National Gypsum Co., The Pacific Lumber Co., Peerless of America, Inc., Penn Brass & Copper Co., Penn Electric Switch Co., Perfection Gear Co., Quick Frozen Foods.

Quillen Brothers Refrigerator Co., Ranco, Inc., Refrigeration Corp. of America, Rotary Seal Co., Safe-Way Food Locker Co., Salem Engineering Co., Servel, Inc., Sporlan Valve Co., Standard Refrigeration Co., The Stangard-Dickerson Corp.

Superior Valve & Fittings Co., Tecumseh Products Co., Temprite Products Corp., Thermal Co., Inc., Tyler Fixture Corp., United Cork Cos., United Refrigerator Mfg. Co., Universal Cooler Div. of International Detrola Corp., Virginia Smelting Co., The Weatherhead Co.

Western Fixture & Equipment Co., Westinghouse Electric Corp., White-Rodgers Electric Co., Wolverine Tube Div., York Corp.

ZIA ELECTRIC IS EBCO N.M. OUTLET

Zia Electric Distributing Co., Santa Fe, N. M., has been appointed distributor for the state of New Mexico on Ebco Mfg. Co.'s "Oasis" electric water coolers.

SERVEL BUYS PLANE PLANT FOR COOLERS

Servel, Inc. has purchased the government-built plant which the company operated in Evansville during the war for the manufacture of airplane parts, according to an announcement by the War Assets Administration.

It is reported that Servel will use this new plant for the manufacture of both household and commercial air conditioning equipment.

PRICE CONTROLS OFF SOME COMM'L UNITS

Lifting of all price controls from soda fountains, ice cream freezers, and bottle coolers has been effected by the OPA in its Amendment 77 to MPR 188, which went into effect April 8.

Some confusion still exists as to the definition of the term "bottle coolers" as used in this amendment. It is not yet known whether or not the order will cover self-contained bottle coolers and similar items.

LA CROSSE COOLER NOW IN NEW PLANT

La Crosse Cooler Co., formerly known as the La Crosse Novelty Box Co., has moved to its new quarters at 2809 Losey Boulevard South, La Crosse, Wis. The new plant, first unit of a post-war expansion program, provides approximately 40,000 sq. ft. of production space.

GREENWOOD CO. IN COMPRESSOR FIELD WITH 'ACE' LINE

The Allen D. Greenwood Co., Burbank, Calif., has entered into a manufacturing agreement with Lights, Inc. for the the manufacture of refrigeration compressors. Allen D. Greenwood, president of the company, formerly was with the Lights organization as an executive in the aircraft field.

To be marketed under the trade-name "Ace," the compressor line eventually will include units from ¼ to 3 H.P. At present the production is being limited to ¼ H.P. machines. L. H. Polderman has been appointed vice president in charge of the program for the manufacture and distribution of the equipment.

Mr. Polderman formerly was a vice president and western manager for Carrier Corp. Also associated with the Greenwood organization are Ed Reaume, former project engineer for Lockheed Aircraft Corp., and Donald Beeson, engineer. These two men will head the company's engineering department for the development of new refrigeration and air conditioning equipment.

In addition to its principal offices here, the Greenwood company is setting up foreign offices in London, Shanghai and Buenos Aires.

Four recently discharged Army veterans, done with dishing it out to Adolph and Tojo, now are back serving it up to customers of the Harry Alter Co., Chicago refrigeration wholesaler. Pictured here, from left to right behind the Alter counter, are: Joe Holeb, former Field Artillery captain in the Pacific theater and now in charge of counter sales; Ed Wodniekowski, branch manager of the Alter Co. before entering the Army, Leonard Sostrin, who spent many months in the South Pacific; and Harold McClure, who spent several years in the Army performing maintenance work.

CARRIER PLANS RURAL SALES OF FREEZERS

Retail outlets operated by cooperatives, granges, and other farm organizations will be used by Carrier Corp. to push sales in rural areas of its new food freezer, which recently began rolling off the production line at a rate which ultimately is scheduled to reach 3,000 units per month.

While the freezers also will be sold by Carrier's 4,000 regular dealers, additional coverage is assured under an agreement signed with the United Cooperative of Alliance, Ohio, representing agricultural groups with a total membership of 1,300,000 families living in eastern, midwestern, and southwestern farm regions.

Designed in 15 and 30-cu. ft. sizes, with capacities of 600 and 1200 pounds of frozen foods, the new freezers are equipped with aluminum freezing plates which also serve as storage shelves. They also feature one-piece plastic inner door liners and gravity cooled condensers said to eliminate the need for auxiliary cooling fans. Both models are front opening.

TEMPLE U. PLANS COOLING COURSES

In addition to evening courses in refrigeration and heating, ventilating and air conditioning, Temple University, Philadelphia, plans to inaugurate full-time day courses, probably for one or two years' duration, starting in the June quarter this year, James J. Crawford, director of the technical school, has announced.

The one-year evening course, which was started in October of last year, consists of practical and theoretical training. Classes are held two nights a week, three hours per night, for two 15-week periods. Instructors are George P. Ward of the Philadelphia Appliance Service Corp. and Forrest E. Cory of the Judson C. Burns Co.

DALLAS FIRM NAMES NEW SERVICE HEAD

Edwin H. Turpin, formerly with the telephone company, has been named manager of the service and installation department of the O. B. Kennedy Refrigeration Co., Dallas, Tex.

EUREKA WILLIAMS OPENS S.F. OFFICE

Eureka Williams Corp. has opened a sales office in the Western Merchandise Mart, San Francisco. The office will be headquarters for a sales staff headed by O. H. Golberg, western sales manager of Eureka.

20-CENT DIVIDEND PAID BY PHILCO

The board of directors of Philco Corp. has declared a dividend of 20 cents per share of common stock payable March 12, 1946, to stockholders of record February 28, 1946. The previous regular dividend was 20 cents per share.

THE 'GOOD OLD DAYS' ARE BACK

Reminiscent of the old high-powered specialty selling days of the refrigeration industry is this picture of a General Electric refrigerator which survived a disastrous train wreck a little the worse for wear but still in good working order. Its crate reduced to splinters and its cabinet and shelving badly bent, the unit nonetheless operated perfectly when plugged in and turned on.

SALESMEN, STUDENTS VIEW PHILCO FILM

The first phase of the 1946 Philco Retail Sales Training Program was started recently with a preshowing of a two-hour motion picture featuring Philco products to over 70 retail salesmen at the Philco Distributors Inc. offices in Philadelphia.

Through the motion picture medium a selected group of retail salesmen and distributors from the large eastern cities was shown the entire radio, radio-phonograph, freezer and refrigeration line, analyzed by top Philco executives. The film in conjunction with other visual aids will be used by Philco distributors in sales schools all over the country during the summer and early fall.

In addition, this retail sales training film has been shown to the University of Pennsylvania Evening Salesmanship Class at the request of Dr. J. L. Daubman, class director, to illustrate the use of motion pictures as a significant development in sales training technique.

FROZEN FOOD FIRM CHANGES HANDS

T. A. Nicholson, recently discharged from the Navy, and Murray Cabell have purchased Liebmann's Frozen Food Co. in Oklahoma City, according to Jay Liebmann, who founded the company seven years ago.

Ed Starkey, former manager who has been ill, will return as manager.

FIRST CLASS IS GRADUATED FROM YORK COURSE

The York Institute of Refrigeration and Air Conditioning, most complete school of its kind in the country, graduated its first class on April 5. This class consisted of 30 commercial field service men who had completed a six-week course of instruction in the servicing of York commercial refrigeration equipment.

Due to the critical housing situation, community-minded York citizens opened their homes to these men who came to York from United States and foreign points as far distant as Santiago, Chile, and Melbourne, Australia.

S. E. Lauer, president of the York Corporation, which operates the Institute, officiated at the graduating exercises. He presented each man with his diploma and congratulated the class upon their successful completion of the course.

Other speakers on the program were: J. E. Moody, manager, industrial relations; C. J. Brillinger, supervisor of training; W. E. Landmesser, manager, commercial department; and J. L. Rosenmiller, manager, accessory equipment & maintenance.

CARRIER LANDS 400 THEATER CONTRACTS

A $2,000,000 contract involving the air conditioning of a statewide chain of 400 Florida movie theatres has been announced by Carrier Corp.

The agreement with the entertainment group calls for installation of air conditioning in thirty of the theatres before January 1, 1947, with the rest to be equipped by the end of 1948. The deal is reported to be the largest in the history of theatre air conditioning.

Frank Rogers, president of a theatre combine comprised of Florida Theatres, Inc. and Paramount Enterprises, Inc., said that any theatres added to the chain before January 1, 1949, would also be air conditioned.

Four Carrier dealers will make the actual installations. They are: Belcher Industries, Inc., Miami; Florida Weathermakers, Inc., Jacksonville; Falkners, Inc., Orlando; and Krauss Heating & Ventilating Co., St. Petersburg.

Says
GASKET JOE

THE MAN WHO REALLY KNOWS THE SCORE WILL CHECK THE GASKET ON THE DOOR

JARROW PRODUCTS
420 N. LA SALLE ST., CHICAGO 10, ILLINOIS

Order Monday--Get It Friday!

RUBBER TIRED
TRUCK

All Steel
$14.95

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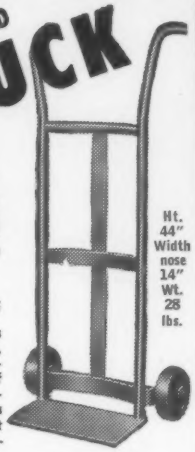
Lots of 3, $13.95



Ht. 44" Width nose 14" Wt. 28 lbs.

Famous "HANDEE" truck, best known, widest used truck of its type in America . . . and you can get it right now. Stores, manufacturers, deliverymen by the thousands use them for bags, cases, cartons, kegs, etc. 600 lb. capacity. Curved cross straps. Easy to handle. Fully guaranteed. Order from

Full size, first quality. Not a wartime makeshift. Light weight. Nationally known.

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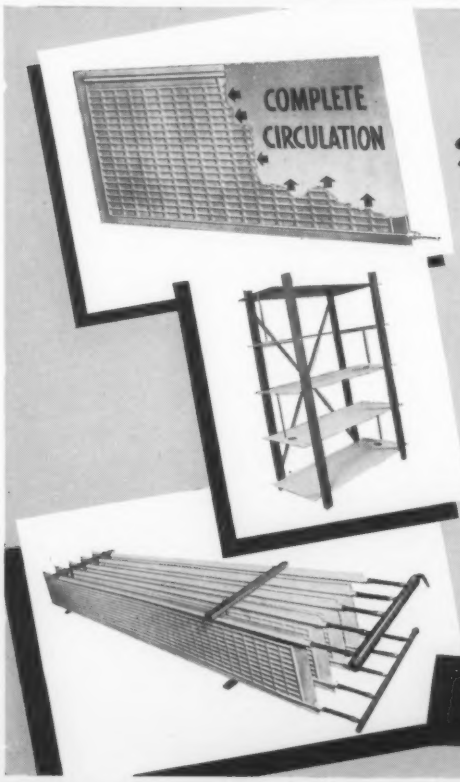
COMPARISON WILL PROVE IT'S BETTER!

Patent Pending

"The Seal of Approval"

Write for Stock and Price List. Learn how you can save by eliminating "call backs".

TEMPERATURE Control Devices
NEW HAVEN 15, CONNECTICUT



For Complete Surface Freezing

HUBBELL-YODER
REFRIGERATION PLATES

—and we mean "*COMPLETE* SURFACE."

Take a 19" x 108" Hubbell-Yoder Plate for example. That's 2052 square inches of plate area. And every single square inch is actual prime heat pickup surface. You see the interior of the plate is a network of ducts through which the refrigerant circulates, spreading out in all directions so as to form a web of refrigerating element. That's "*Complete* Surface Freezing."

If you make, sell or use low temperature equipment such as freezer cabinets, locker plant plate banks, sharp freeze shelf stacks, etc., it will certainly pay you to get details on Hubbell-Yoder Plates. They'll step up operating efficiency and reduce operating costs. As the old darkey said, "Dat am no prophecy: dat am a *fact.*" Write, wire or phone.

HUBBELL YODER REFRIGERATION PLATES

International Sales Agents
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Honeywell has the answer! Temperature controls for high or low temperature ranges — Pressure controls, both light and heavy duty — Room type thermostats to meet any specification — Control accessories which provide full flexibility of application. Some Honeywell Refrigeration Controls are equipped with mercury tube switches, some with open contact snap switches depending upon the design application. There is just the right Honeywell Control for every job. Honeywell branches and jobbers are conveniently located in all parts of the country. Factory trained engineers are ready to assist you with your control problems. Call them or write: Minneapolis-Honeywell Regulator Company, 2909 Fourth Avenue South, Minneapolis 8, Minnesota — Manufacturers of the famous Polartron System of Frost Free Refrigeration.

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CONTROL SYSTEMS

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CONTRACTORS

News • Activities • Plans

Here Are Refrigeration Jobs O.K.'d Under Construction Order

Most of the uncertainty regarding exactly what items of refrigeration and air conditioning equipment may or may not be installed without requiring specific authorization under terms of the construction limitation order recently issued by the Civilian Production Administration are cleared up by Supplement 1 to the regulation (known formally as Veterans Housing Program Order 1) issued May 2.

On the basis of this latest information, practically all items of what might be termed *movable* refrigeration and air conditioning equipment are not covered by the construction limitation order. This would include store coolers, room coolers, compressors and condensing units, commercial refrigerator cabinets and display equipment, beverage coolers, commercial frozen food cabinets, and the like. Water coolers, while they are not specifically mentioned in this category, presumably would be included also.

The limitations of the construction order, however, do apply to central-station type air conditioning systems used for human comfort and construction of specially-built refrigerated enclosures also require authorization.

The order, as originally issued March 26, had already clarified the status of refrigerated locker storage plants. Construction, repair, alteration or installation of such plants requires authorization if the amount involved is more than $1,000.

The supplement issued May to VHP-1 defines what is meant by the "fixtures and equipment" named in the original order. According to that order, installation of items classified as "fixtures and mechanical equipment" came under the dollar limitations of the regulation—and authorization is required for all applications which exceed the following amounts:

$400 for a single residential structure;

$1,000 for a hotel, multiple residence (for more than five families), apartment, or resort;

$1,000 for locker plants and other commercial structures;

$1,000 for farm buildings excluding residences;

$1,000 for a church, hospital, school, college or similar institution;

$15,000 for a factory, plant or other industrial structure;

$200 for other structures covered by the order which do not fall into any of the other classifications above.

According to the supplement of May 2, the following items are *never* considered "fixtures or mechanical equipment":

Air conditioning equipment where required to provide humidity or temperature control for industrial processing and self-contained individual units with no duct systems.

Refrigeration equipment, such as compressors, in a cold storage warehouse or a frozen food locker plant.

Refrigerators (except where built as an integral part of the building).

However, the following items of refrigeration equipment are considered "fixtures and mechanical equipment" if they are attached to a building or structure by nails or screws if they are connected with the plumbing or other piping system of the structure, if they are connected to the lighting system (except through an existing outlet), if a base or foundation is built for them, or if they are cemented to the building:

Air conditioning equipment (except when used for humidity or temperature control in industrial processing or as refrigeration equipment n a cold storage warehouse or a frozen food locker plant and except self-contained individual units with no duct systems).

HOW'S YOUR NOSE TO KNOW?

Refrigeration Leaks are EASY to Locate with

Lenk HALIDE LEAK DETECTOR

√ Easy to Use
√ Efficient and Simple
√ Non-Clogging Burner Self-Cleaning Orifice

(Can also be used as high-heat blow torch)

SAFE
SURE
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Save time and labor—pays for itself on a few jobs!

Lenk THE MFG. COMPANY
NEWTON LOWER FALLS 62, MASS.
Manufacturers of Soldering Equipment Since 1919

Soda fountains.
Ventilation equipment.

Repair and installation of replacement parts in existing "mechanical equipment", where no change in the structure is made, is not covered by the order, regardless of whether the cost of the job goes over the allowable limits listed above. Replacement of the entire piece of equipment, however, is restricted, if it goes above the prescribed limits as to dollar amount.

Since compressors are specifically mentioned as not being "mechanical equipment", however, replacement of them, as well as such other refrigeration products as exempted in the first list given above, is not subject to limitations of the order. This would seem to leave the way clear for all necessary maintenance of existing equipment.

Inquiries and other communications concerning the order should be addressed to Civilian Production Administration, Washington 25, D. C., Ref.: VHP-1.

BUT WE'RE GLAD TO GIVE YOU A COPY FREE!

Tabulated Properties of Various Refrigerants, one of the industry's "best-sellers," is yours for the asking. Compiled by VIRGINIA for all refrigeration engineers and service men, the 1946 Edition is now ready. It's handy pocket-size, and chock-full of valuable information. Mail the coupon today for your FREE COPY.

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COOLSTREAM CORP. IN NEW LOCATION

The Coolstream Corp., manufacturer of electric water coolers, and the Coldtroltemp Equipment Sales Co., have moved to 236 Butler St., Brooklyn, N. Y., Lionel Berken, president and general manager, has announced.

IN an attempt to solve India's age-old famine-producing problem, the loss of seed between crops because of the country's destructive heat and humidity, Carrier Corp. (under U.S. priority) is shipping refrigeration equipment for cold storage warehouses to three Indian cities in order to save the 2,956,800 pounds of seed potatoes lost annually due to climactic conditions.

This equipment will be installed in four warehouses in the northern Indian cities of Lahore, Delhi, and Gurdaspur. Each warehouse will have a capacity of 660 tons of seed potatoes, and will be privately financed and operated.

Crop losses between planting and harvest in this area range from 35 to 75% annually. Shipment of the refrigeration equipment, it is pointed out, is far more economical than shipping the amount of food equivalent to that which the equipment will save.

NEW HAVEN DEALER TO HANDLE CARRIER

Connecticut Cooling Corp., 205 S. Orange St., New Haven, Conn., has been appointed exclusive distributor for Carrier Corp. in the New Haven area. The firm will handle comfort air conditioning, industrial air conditioning and refrigeration, commercial refrigeration and packaged air conditioning and refrigeration.

REFRIGERATION men, from present indications at least, are in for another tough summer. There are around 3 million commercial systems in use, and with production of new equipment set back by strikes and attendant materials shortages—to say nothing of existing equipment, now a year older—the problem of keeping 'em running through another hot season stands to be even more difficult than last year.

New equipment may reach the market in a trickle late this summer, but the wise contractor will practice conservation—probably he has been—for some parts still aren't too plentiful. The National Association of Refrigeration Contractors has asked its members for a report on those materials which are particularly scarce, so some relief may be forthcoming through that group. REWA is active in this respect, too.

frigerated fixtures already in service, block the flow of air thru the condenser with cardboard (or reduce the flow of cooling water) and build the head pressure to 180 lbs. and with a ¼" line, by-pass the high to the low side thru the port plugs in the service valves. This will increase the pressure on the low side making any leak present more pronounced and more readily located.

A film of oil will generally be present around any joint that is leaking refrigerant.

Shortage Means a Leak

A shortage of refrigerant in a system after a period of satisfactory operation indicates a leak somewhere in that system. Be sure the leak is located and corrected before adding refrigerant. To just add refrigerant will only result in another service call later and is a costly waste of refrigerant.

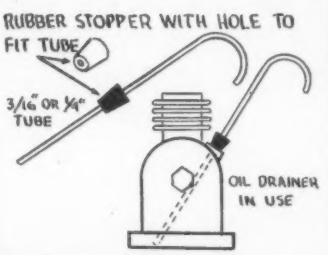
With a liquid indicator in the liquid line, if the system is short of refrigerant, bubbles of refrigerant vapor will pass thru the sight glass with slugs of liquid when the condensing unit is operating. With sufficient refrigerant charge, the flow thru the sight glass will be clear and colorless.

Temperature (thermostatic) control is most satisfactory for ice cream storage units. The control may be mounted on the fixture or close to the condensing unit, with the control bulb inserted in the well provided at the ice cream section evaporator. A long capillary tube is provided on the control in many cases to permit locating the control close to the machine to simplify electric wiring connections.

When the bulb of the temperature control is inserted in the ice cream evaporator well be sure to fill the well with vasoline, glycerine, or refrigerant oil, and plug the hole with a split stopper. Failure to insert the stopper may permit moisture to enter, which will freeze and may split the well, necessitating replacement of the evaporator.

Check Bulb Location

Be sure the temperature control bulb is inserted in the correct bulb well. Evaporators and ice cream sections are generally provided with two bulb wells, one for the thermostatic



I DRAIN oil from compressors by using a tool made from a small diameter tube and three different size rubber stoppers.

Stoppers are pierced through their length to allow a neat fit on the piece of tube. Using an emery wheel, the small stopper is ground to a fine taper so that it can fit in the smaller oil holes.

To use, build up a pressure on the low side of system to be drained. Balance pressure in crankcase. Pull main switch to stop machine. Warm crankcase and take out oil plug. Slip nearest size stopper on oil tube and screw into oil hole (rubber stopper will grip threads in oil hole). Now push tube down until it touches bottom of crankcase.

By opening suction shutoff valve, pressure will force oil out through tube. Be certain switch is open or motor may start with tube in compressor, and with results easily imagined.

John Roberts, Glace Bay, N.S.

Look for the can with the blue label

For years, Davison's Refrigeration Grade Silica Gel has continued to win friends and influence skeptics because . . . until you once use it, you don't know the peace of mind, the good will and the extra profits that come by standardizing on the complete, fool-proof drying agent.

HAVE YOU TRIED IT? ASK SOMEONE WHO HAS!

Your jobber stocks Davison's Refrigeration Grade Silica Gel in bulk. Ask him for factory-charged dehydrators filled with Davison's Refrigeration Grade Silica Gel.

THE DAVISON CHEMICAL CORPORATION
Progress through Chemistry
BALTIMORE-3, MD.

Canadian exclusive sales agents for DAVISON'S SILICA GEL:
CANADIAN INDUSTRIES LIMITED, General Chemicals Division

expansion valve bulb and one for temperature control bulb. The equipment will not function properly with the bulbs interchanged in the wells. See manufacturer's instructions or the refrigeration hook-up diagram on the fixture to determine the correct well for each bulb.

Connect the temperature control in electrical series with the high pressure cutout (if the machine is equipped with one) and both in series with the condensing unit motor. The "hot" (+) wire of the power supply should always be connected to the control first, with the motor connected on the "ground" side. Instructions covering the control and showing electrical connection diagrams are generally packed with each control.

Power Characteristics

Be sure the electrical power supply is of the same electrical characteristics as the motor on the condensing unit. Most "open type" condensing units are equipped as standard with 110-220 volt, single-phase, 60-cycle, AC motors, but may be equipped with special motors of other characteristics if specified. Hermetic units are generally single voltage units either for 110-volt or 220-volt power supply and single-phase, 60-cycle, AC as standard.

Most fountain and luncheonette refrigerated equipment is direct expansion and shipped "dry". Refrigerant and oil must be charged into the system at the time of installation by whoever supplies the condensing unit.

Always seal refrigeration and plumbing line openings in refrigerated fixtures both inside and outside with permagum cork sealer supplied in a small can with the equipment.

There is one precaution that must be observed in plumbing the waste lines to soda fountains. The waste connection from the storage compartment on the fountain unit must *NOT* be connected into the waste from the sinks, dipper wells, or rinsers *above* the floor.

"Oh, no, you needn't leave; just move over so I can put the milk in."

The fountain waste connection should first go down through the floor and then tee into other waste lines below floor level. The reason for this is that if the fountain waste line is connected in above floor level, the water from the sink, when discharged, may back up into the fountain dry storage compartment.

If it is absolutely necessary to connect the fountain waste above the floor level, horizontally and without any drop or elbow offset in the line, install a check valve in the fountain waste line to prevent backing up of the sink waste water.

Another important point is that drain pipe connections to sinks must be cut to correct length (not long) to avoid springing or forcing the sink bottoms upward, as this would result in incomplete draining of the sink.

A QUICK GUIDE TO MOTOR-START CAPACITOR REPLACEMENTS

SPRAGUE UNIVERSAL ELECTROLYTIC CAPACITORS FOR CAPACITOR START MOTORS

Motor Rating H. P.	Motor Speeds	Typical Capacity Rating	Sprague Part Numbers	List Price
1/8	3450—1725—1140	75-84 mfd.	A3505	$1.60
1/6	3450—1725—1140	86-96 mfd.	A3506	1.65
1/4	3450—1725—1140	108-120 mfd. 124-138 mfd.	A3507* A3508	1.70 1.80
1/3	3450—1725—1140	161-180 mfd.	A3510	2.40
1/2	3450—1725—1140	216-240 mfd.	A3511	3.25
3/4	3450—1725—1140	378-420 mfd.	A3513	5.40
1	3450—1725—1140	378-420 mfd.	A3513	5.40

*There are some 1/4 H.P. motors of special design which may require a capacitor of 108 to 120 mfd. such as Sprague Catalogue No. A3507. It is always possible to use A3508 as a replacement for these units.

NO LOST TIME! THE EXACT NEEDED CAPACITOR IS ALWAYS IN STOCK

Here you see how *only eight* of the small Sprague UNIVERSAL Capacitor types enable you to handle almost any standard motor-start replacement—quicker, easier, more dependably and often at less cost. Other types simplify replacements for permanent split-phase capacitor motors to an equal extent. Write today for Sprague Bulletin C-356 giving you the complete story of why it will pay you to standardize on Sprague UNIVERSALS for EVERY job.

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A NEW COMPLETE STORY ON MOTOR STARTING CONDENSERS
WHY STOCK ALL THESE...
WHEN THIS SMALL UNIT OF THE CORRECT CAPACITY WILL DO ANY JOB

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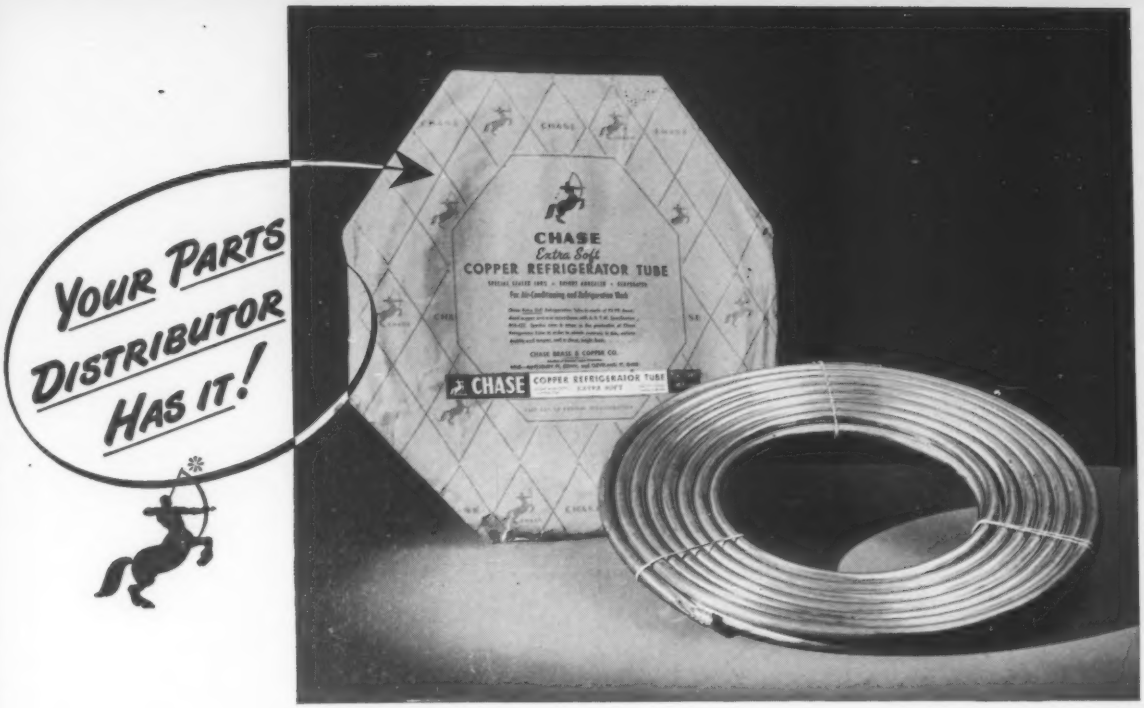


CHASE* *Extra Soft* Refrigerator Service Tube

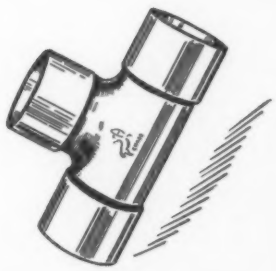
in a new, more efficient package!

EXTRA soft in temper, Chase Copper Refrigerator Service Tube can be bent easily and flared by any of the usual methods. A new, positive end seal fits anywhere that the tube will fit, "locks out" dirt and moisture.

To make it easier for you to handle Chase Copper Tube, both in stock and on the job, a more efficient package has been designed. It has a large readable label with complete specifications. It saves shelf space. It can be reused, to keep cut coils clean and identified, ready for future use.

Next time, ask your parts distributor for Extra Soft Chase Copper Service Tube. Available in sizes from ⅛" to ¾" in 50 and 100 ft. lengths. See if this isn't the handiest tube you've ever used.

*Reg. U. S. Pat. Off.



COPPER TUBE FITTINGS—Chase offers a complete line of wrought copper fittings for refrigeration and air conditioning lines. *Use* them with Chase Copper Service Tube.

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BRASS & COPPER CO.

Waterbury 91, Connecticut
SUBSIDIARY OF KENNECOTT COPPER CORPORATION

This is the Chase Network—handiest way to buy brass — INCORPORATED

ALBANY† ATLANTA† BALTIMORE BOSTON CHICAGO CINCINNATI CLEVELAND DETROIT HOUSTON† INDIANAPOLIS KANSAS CITY, MO.† LOS ANGELES MILWAUKEE MINNEAPOLIS NEWARK NEW ORLEANS NEW YORK PHILADELPHIA PITTSBURGH PROVIDENCE ROCHESTER† SAN FRANCISCO SEATTLE ST. LOUIS WASHINGTON† *(†Indicates Sales Office Only)*

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A Sealing Cap recently introduced has received instantaneous and nationwide acceptance—made of aluminum with precision fit accuracy assuring a leak-proof seal.

Among its outstanding features:

1. ***Leak-proof sealing action.***
2. ***Simplicity of installation (installed without removing unit from cabinet).***
3. ***Adaptable to all hermetically sealed type Crosley units (1937-1941).***
4. ***Chemical resisting construction.***
5. ***Installed by ordinary hand tool.***

A trial order will convince you—sold with a money back guarantee at the introductory price of $3.50 per set. Special prices for volume orders.

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Coils for Refrigeration
Coils for Air Conditioning
Air Conditioning Units
Humi-Temp Forced Convection Units
Polished Aluminum Disseminator Pans
Steel Plate Coils
Evaporative Condensers
Industrial Coolers
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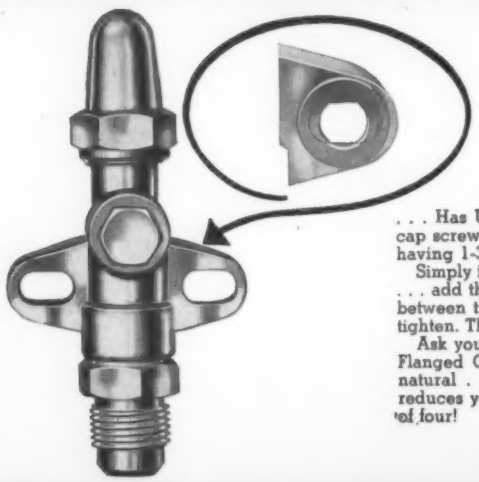
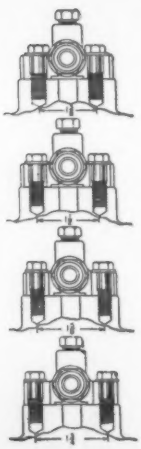


The "UNI-HOLE" Flanged Compressor Valve

. . . Has Universal bolt holes for use with 5/16" bolts or cap screws, to facilitate installation on compressor flanges having 1-3/8", 1-1/2", 1-5/8", or 1-3/4" centers.

Simply install the "Uni-Hole" Valve in its proper position . . . add the two heavy washers (supplied with each valve) between the flange and bolt, or cap screw head . . . then tighten. That's all there is to it!

Ask your Jobber to show you the SUPERIOR "Uni-Hole" Flanged Compressor Valve. You're sure to like it! It's a natural . . . and besides saving you installation time, it reduces your stocking problem. *One size does* the work of four!



The diagrams at the right tell the story.

NO. 132

SUPERIOR VALVE & FITTINGS COMPANY

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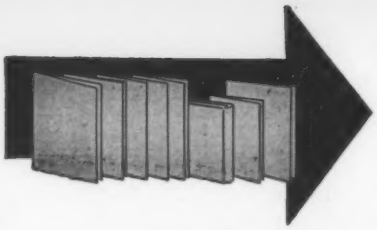
OFFICES IN PRINCIPAL CITIES • STOCKS CHICAGO (6) • LOS ANGELES (15) • JOBBERS EVERYWHERE



Useful Literature

The publications listed below are available to readers without charge. Simply list on the postcard provided in this issue the numbers of the items you wish to receive, and send it to THE REFRIGERATION INDUSTRY, 1240 Ontario Street, Cleveland 13, Ohio. Your requests will then be forwarded directly to the companies concerned.

306—Wall and Ceiling Diffusers . . . A four-page bulletin, available from Merchant & Evans Co., describing the new M & E wall and ceiling diffusers for use in walk-in, reach-in and display cabinets and other above-freezing applications. Lists general specifications, dimension table. (Catalog No. D-100).

307—Compressor Stand & Work Table . . . A one-page sheet available from Petersen Show Case & Fixture Co., illustrating and describing features and specifications of its CS24 compressor stand and work table, a newly developed product.

308—Pipe Insulation . . . A folder issued by Mystik Adhesive Products division of Chicago Show Printing Co., describing the properties of "Mystik self-stik Dri-Pipe", an insulation for cold water pipes that stops condensation drip. Illustrates how to apply material to various pipe sections and widths.

309—Freezer, Cooler Units . . . A six-page bulletin issued by American Refrigerator & Machine, Inc., to illustrate and list specifications and features of its recently announced home freezer, farm and commercial dual-purpose freezers, and "Arid-Air" bottle beverage cooler units.

310 —Food Conditioner . . . A two-page catalog insert sheet listing specifications, features and operation of the Amcoil deluxe Food Conditioner. Available from American Coils Co.

311—Torque Screw Drivers . . . A new catalog data sheet issued by Airdraulics Engineering, Inc. to announce the new "Tru-Torque" line of measuring and controlling screw drivers, available in three standard sizes and designed for precision service on production and assembly lines and for maintenance work.

312—Welding Equipment . . . Tools and fittings required for electric welding work, illustrated and described in a 12-page "Twecolog" just issued by Tweco Products Co. Featured product is a new "Twecotong" electrode holder.

313—Temperature Control Instruments . . . A new 16-page catalog issued by H-B Instrument Co. illustrating and describing in detail the complete H-B line of temperature control instruments, including relays, thermostats, and Red-Top thermoregulators, designed for ranges from minus 30 F. and plus 500 F.

314—Corrosion Control Data . . . A 16-page booklet, "Corrosion Control in the Refrigeration Industry: The Chromate Treatment of Brine", describing methods used in combating corrosion in the refrigeration industry. Issued by Mutual Chemical Co. of America.

315—Automatic Alarm Device . . . Information on the newly developed "Freezrlarm", a self-contained warning device designed for use on home freezers, locker plants and commercial freezers. Unit sounds alarm when temperatures approach danger point from any cause, averting food spoilage as result of mechanical failures. Issued by Freezrlarm Co.

316—Refrigeration Instruments . . . A 20-page catalog available from Jas. P. Marsh Corp., listing and describing the company's line of refrigeration instruments, including pressure, temperature and compound gauges, dial thermometers, and the Marsh "Serviceman" unit.

317—Tool Catalog . . . Catalog 46J, a 20-page catalog for jobber salesmen issued by Bonney Forge & Tool Works, picturing and describing a wide variety of shop tools and equipment for all types of maintenance work.

318—Pipe Joint Compound . . . A folder describing the properties and uses of the Plastic Lead Seal produced by Crane Packing Co. for use in all types of threaded joints and connections.

"MILK BANKS" operated by the Mother's Milk Bureau through donors in much the same way that the Red Cross runs its blood banks constitute one of the most striking examples of the part which mechanical refrigeration now plays in the lives of American babies.

Mothers' milk drawn from recommended donors is pooled, sterilized, and stored. Much of it is frozen, and thus preserved for weeks or even months until it is needed. Sold to those who can afford to pay, free to those who cannot, it already has been the means of saving many an infant's life.

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Employed by _____ R-22

For further information on any of these products, simply list the key number at the head of each item on the special post card enclosed with this issue.

Thermo-Limit Valve • • • P-81

Product: New "Thermo-Limit" thermostatic expansion valve.

Manufacturer: Alco Valve Co., St. Louis.

Features: Available at present only in field of smaller commercial refrigeration, and covering nominal range

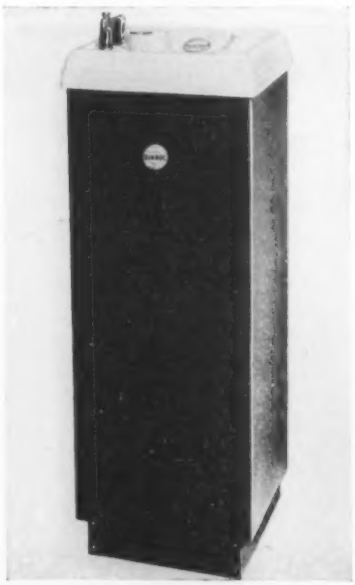
of ¼ to 1½ tons. Unit automatically limits evaporator or suction pressure, eliminating heavy overload on motor during starting or "pull-down" period. Pressure limiting "cartridge" consists of pressure-charged bellows, valve pushpin, and spring, and partially takes the place of cage assembly in more conventional Thermo valve. Selection of cartridges, each charged to a pre-determined pressure, are interchangeable on the job. Unit has liquid charge and may be installed anywhere in the system and in any position. Operating parts are interchangeable on the job. In addition to five different pressure cartridges, four capacity changes are available in the form of "cage" assemblies. Separate "service kit" to be available through jobbers includes six pressure limiting cartridges, four capacity cage assemblies, extra gaskets, and metal specification tags to be attached to capillary tubing. Superheat adjustment is external and does not affect pressure limit setting. Strainer is built-in. Principal applications include display cases, walk-in and reach-in units, ice cream cabinets, milk coolers, farm and home freezers, room coolers, blower coils, etc. Complete details available in Bulletin 152.

Water Cooler • • • • • P-82

Product: Electric water cooler.

Manufacturer: Sunroc Refrigeration Co., Glen Riddle, Pa.

Features: "Little Giant" cooler is designed for those installations where drinking water requirements are limited; has same features and construction as larger Sunroc models. Cooler



has capacity of 5 gallons of cool drinking water per hour, without precooling, and is available with either hermetically sealed or conventional refrigerating unit.

Pipe Insulation • • • • P-83

Product: Mystik Self-Stik DRI-PIPE pipe insulation.

Manufacturer: Mystik Adhesive Products, Chicago.

Features: Prevents condensation drip by jacketing cold water pipes with thick blanket of insulation and efficient vapor barrier. Made of water repellant pliable insulating material with moisture-proof backing which does not require painting but will take paint for decorating purposes. Backing has "self-stik" adhesive edges on both sides of insulation for attaching to pipes. Product is applied lengthwise to the pipe; lengths cut with scissors. Standard size covers ½" and ¾" pipe; larger pipe, air ducts, tanks, etc., covered by splicing necessary widths together. Available in varied thickness of insulating material.

Farm Freezer • • • • • P-84

Product: "American" farm and home freezer.

Manufacturer: American Refrigerator & Machine, Inc., Minneapolis.

Features: 15 cu. ft. unit has 2½ cu. ft. quick freeze section at -10° to -20°, 12½ cu. ft. storage section at 0°. Belt liner or plate coils surround both sections. 5" insulation all around. Powered by ½ H.P. com-

pressor. Exterior is white baked enamel, interior aluminum enamel. Freezer is also made in 8, 22, and 30 cu. ft. sizes with same features except for size of storage compartment.

Spray Nozzles • • • • • P-85

Product: Spray nozzles for air conditioning, room cooling, industrial uses.

Manufacturer: Delavan Engineering Co., Des Moines, Iowa.

Features: Supplied in WS and WSS types, former producing hollow cone spray and latter a full cone spray. Offered in both female and male pipe threads in 1/4", 1/2", 3/4" and 1" sizes and for range of capacities from .15 to 24 g.p.m. Designed to be taken apart readily for cleaning.

Wire Solder Packages • • P-86

Product: New packages of wire solder.

Manufacturer: Lenk Mfg. Co., Lower Newton Falls, Mass.

Features: Available in quarter-pound and half-pound spools, packaged for re-sale. Solder of virgin metal with either acid or resin core, as desired.

Utility Tool • • • • • P-87

Product: Portable flexible shaft utility tool.

Manufacturer: The Dumore Co., Racine, Wis.

Features: Weighs only 8 lbs. Motor (1/15 H.P.) may be hung from any convenient hook, connected to outlet for use. Equipped with No. 0 Jacobs chuck to handle all drills, grinding wheels, buffers and countersink bits with shanks of 1/8" diameters or less. Speed controlled by foot rheostat.

Plastic Enamel • • • • • P-88

Product: Non-chipping, non-yellowing plastic enamel for refrigerators and other appliances.

Manufacturer: Naugatuck Chemical division, U. S. Rubber Co.

Features: New plastic coating, called "Kotol", is resistant to high temperature and is applied by conventional methods and baked to durable

AMINCO
OIL SEPARATORS

Aminco Oil Separators protect compressors by maintaining correct oil level in crankcase and by excluding oil from refrigerant stream they enable coils, condensers, valves and dehydrators to function most efficiently.

These oil separators are made for jobs from 1/3 H.P. to 120 tons and are used everywhere, ashore or afloat, where efficient refrigeration is desired.

Full descriptive bulletins on request.

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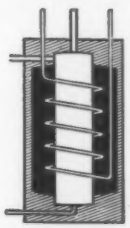
KRAMER Products



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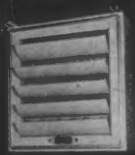
PANEL TYPE UNIT COOLER

The THERMOBANK

COOLMASTER



• With the THERMOBANK a zero degree system is just as automatic as a 40 degree system — in fact more so.
It never needs to be defrosted because it defrosts itself automatically without the use of brine sprays, water sprays or electric heaters.

RADIAL UNIT COOLER

AIR COOLED CONDENSER

FLOOR TYPE UNIT COOLER

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Catalog R 142-RI Sent on Request

finish. It is flexible, has high impact strength, superior hardness, high gloss, minimum discoloration from exposure to light or heat.

Air Conditioner • • • • • P-89

Product: Amcoil Comfortaire Conditioner.

Manufacturer: American Coils Co., Newark, N. J.

Features: Built in floor models for either manual or automatic operation; automatic control of humidity and temperature by humidistat and thermostat. Condensing unit is remotely located. Suitable for home, office, store or industrial use. Exterior finish brown crackled baked enamel. Two models have cooling capacity of 8000 and 12,000 B.T.U., respectively, circulate 450 and 600 c.f.m. of air.

Home Freezer • • • • • P-90

Product: 6 cu. ft. home freezer.

Manufacturer: Maytag Co., Newton, Iowa.

Features: Capacity of 300 lbs. of meat or 180 lbs. of fruit and vegetables. Unit has attached adjustable drop-leaf which can be used as breakfast or dinette unit, special service pan utilizing heat from compressor to defrost foods more quickly. Powered by 1/6 H.P. sealed compressor. Exterior finish is white synthetic enamel, cabinet dimensions 47½" long, 29" wide, 32" high.

Ventilating Unit • • • • P-91

Product: Nu-Air Filt-R-Fan combination filter and ventilating unit for window installation.

Manufacturer: Meier Electric & Machine Company, Indianapolis.

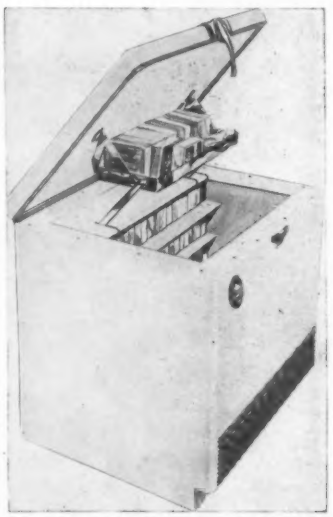
Features: Can be installed in standard windows in less than 5 minutes; powered from available convenience outlet. Case is of steel, white enamel finish; unit is equipped with three removable spun glass filters. O.P.A. ceiling price, $49.07 retail.

Home Freezer • • • • • P-92

Product: 5 cu. ft. home freezer.

Manufacturer: Orley Bros., Detroit.

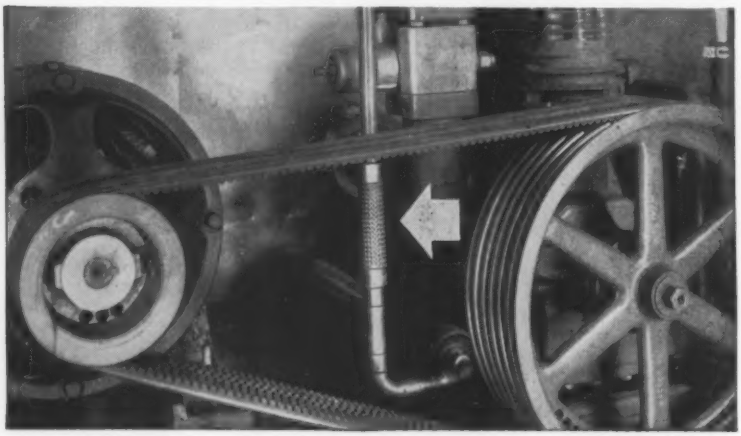
Features: Incorporates freezing and storage in single unit and has



"Handeez-Tray" attached to lid of freezer. Unit provides 8 2/3 sq. ft. of horizontal prime freezing surface, 14 2/3 sq. ft. of overall prime freezing surface. Powered by hermetically sealed unit. Cabinet exterior is white baked enamel with fiberglas insulation. Cabinet interior constructed on aluminum and plastic. "No-Coil" aluminum type evaporator. Does not require defrosting.

Screw Drivers • • • • • P-93

Product: "Tru-Torque" torque



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Reduce Vibration Hazards

REX VIBRA-SORBERS—properly installed—substantially reduce servicing costs. For REX VIBRA-SORBERS have the exceptional strength and flexibility needed to absorb prolonged vibration and thus prevent the transmission of noises throughout the entire piping system.

In addition, REX VIBRA-SORBERS are pressure-tested to insure "refrigerant-tightness." This means greater protection against leakage of valuable refrigerants. REX VIBRA-SORBERS of copper bearing alloy are normally used for Freon and Menthol. Units of steel alloys are available for ammonia. Thus, effective corrosion resistance is assured in all types of installations.

Let experienced C.M.H. engineers help solve your vibration problems. Write today for full information.

Flexible Metal Hose for Every Industrial Use

ARMY E NAVY

CMH

CHICAGO METAL HOSE CORPORATION

MAYWOOD, ILLINOIS

Plants: Maywood and Elgin, Ill.

measuring and controlling screw drivers.

Manufacturer: Airdraulics Engineering, Inc., New Canaan, Conn.

Features: Manufactured in three standard sizes up to 25 inch torque lbs.; designed for precision service on production or assembly lines and for maintenance work. Screw is pre-set at desired torque; when this is reached, handle slips and no further tightening of screw is possible. Units come complete with regular blade for slotted screws, Phillips-type blade, Allen wrench and pin setter. Snap-on adapter also available.

Tube Fastener • • • • • P-94

Product: Refrigerator coolerant tube fastener.

Manufacturer: Tinnerman Products, Inc., Cleveland.

Features: Push-on type Speed Nuts used to make installation of ¼" copper coolerant tubes speedy and secure. Ends of Speed Nut are formed so they will permit tubes to be held in parallel or zig-zag position against enameled surface of inner liner of refrigerator without "crazing" the enamel.

Home Freezer • • • • • P-95

Product: Deluxe "Service free" kitchen model home freezer.

Manufacturer: Home Freezer Div., Whiting Corp., Chicago.

Features: Square, well-type, lift-top cabinet of 4½-cu. ft. capacity holds approximately 175 lbs. of food. Exterior measurements are 36 in. high, 27 in. wide, and 32 in. long; weight is 275 lbs., refrigerant charge is 14 oz. of Freon-12. Exterior finish is white Duco enamel; insulation is 4 in. of Fiberglas; temperature maintained is 0°F.

HANDLES WESTINGHOUSE

Jackson & Johnson Plumbing & Heating Co., Longview, Washington, has been named distributor in Cowlitz county for Westinghouse electric appliances.

NEW LOCKER PLANT

Dr. W. J. B. Williams has opened his combination ice cream plant and frozen food locker service at Cotton Plant, Ark.

Abdullah's a swell boss.
He doesn't make me go 8 days
without a drink.

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CORDLEY AND HAYES
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Specialists on
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Ask your jobber for
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HE HAS THEM OR CAN
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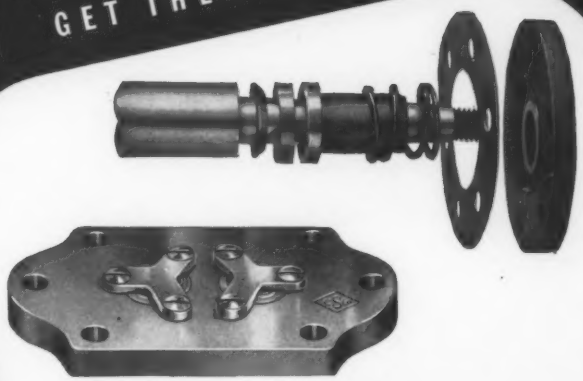

There is no substitute for that feeling of satisfaction when you use CHICAGO SEALS and VALVE PLATES for replacement.

CHICAGO SEAL CO.
20 NORTH WACKER DRIVE
CHICAGO, ILLINOIS

MODERN DESIGN

COMFORT COOLING . . .

Continued from page 30

For example, the following combinations of temperature and humidity in still air produce the same sensation of warmth as does still, saturated air at 70°:

(1) 73° dry bulb and 70% relative humidity,

(2) 74° dry bulb and 60% relative humidity,

(3) 75° dry bulb and 50% relative humidity,

(4) 76° dry bulb and 40% relative humidity,

(5) 77° dry bulb and 30% relative humidity.

Therefore, all these combinations of temperature and humidity are said to have an effective temperature of 70°.

With air at a velocity of 100 feet per minute, an effective temperature of 70° is produced by the following combinations of temperature and humidity:

(1) 75° dry bulb and 70% relative humidity,

(2) 76° dry bulb and 60% relative humidity,

(3) 77° and 50% relative humidity,

(4) 78° dry bulb and 40% relative humidity,

(5) 79° and 30% relative humidity.

It is thus seen that with air at a velocity of 100 feet per minute, a temperature of approximately 2° higher is necessary to produce the same sensation of warmth as is obtained with still air at a corresponding humidity. At a velocity of 300 feet per minute, a temperature of approximately 5° higher over the still air temperature becomes necessary.

COMFORT ZONE: The optimum conditions of temperature, humidity, and air motion for each individual depend, among other less well-defined factors, upon age, acclimatization, temperament, dress, and physical well being.

Although personal preferences vary widely, by experimenting with large groups of people, it becomes possible

to ascertain the optimum conditions for both summer and winter indoor occupancy which please the majority of people in a given locality.

These conditions have been tabulated by the American Society of Heating and Ventilating Engineers in a chart known as the "Comfort Chart." This chart is reproduced elsewhere in this article.

This chart shows that, in still air, humidities from 30 to 70% are permissible both winter and summer. For people living in the northern portion of the U.S.A., effective temperatures from 66 to 75° (71° optimum) are best suited to summer occupancy, while effective temperatures from 63 to 71° (66° optimum) are best suited to winter occupancy.

From this chart we also note that we shall be within the comfort zone in the summertime when the dry bulb temperature is as high as 85°, provid-

AVOID SUMMER SHUTDOWNS

due to Moisture . . . Sediment . . . Acid!

Extra capacity of DFN SYSTEM

pays dividends under hot weather loads

Refrigeration shutdowns are bad at any time —but extremely costly in hot weather. Longer, more frequent runs of your compressor mean more chances for freeze-ups and clogging—unless you have the triple protection and extra capacity of the DFN system. With one unit, it dehydrates, filters and neutralizes. Its exclusive strainer-filter assembly holds more sediment without pressure drop, filters to minute size. Thus, the DFN System handles heavier loads, longer.

Servicing the DFN system is easier, safer and takes only half the time. Simply open the flange, and replace the factory-packed, hermetically-sealed DFN cartridge. No danger of loose, non-uniform packing—no loss of dehydrating strength. Change to the DFN system now. Ask your distributor or write us for catalog R-7.

WIRE MESH FILTERS

MONEL BRASS BRONZE

Fabricated to specification for Refrigerants, Oils and Other Liquids.

McIntire Connector Co.
257 Jefferson St.
Newark 5, New Jersey

Only the DFN SYSTEM DEHYDRATES FILTERS NEUTRALIZES

DEHYDRATORS • STRAINERS FILTERS • NEUTRALIZERS

ing that the relative humidity is no higher than 30%. When the humidity reaches 70%, however, the maximum permissible dry bulb temperature becomes 78°.

At the other extreme of the comfort zone, a temperature as low as 68° is permissible in the summertime when accompanied by a relative humidity of 70% or a temperature of 72° accompanied by a relative humidity of 30%.

When we come to consider load calculations in a later article we shall have more to say on the subject of how length of occupancy and outside temperatures influence indoor design conditions. The optimum conditions shown on the chart are not always the most desirable.

EFFECT OF WALL TEMPERATURE ON HUMAN COMFORT: Recent researches have indicated that the temperature of the walls of an enclosure also have a marked influence on the comfort of the people inside. Thus, with warm walls a cooler air temperature is permissible, while with cold walls a higher air temperature is necessary.

Heating by the method of warming the walls, floor, or ceiling is known as panel heating or radiant heating. Under present techniques, however, the cooling of walls is not very practical, although a probable future factor in comfort cooling.

THAT merchandising refrigeration equipment is anything but a "for men only" proposition is evidenced by the experience of Mrs. Virginia S. Ragan, owner of Ragan Refrigeration Co., Charlotte, N. C. commercial refrigeration distributor.

The company recently observed its fifteenth anniversary, and Mrs. Ragan has been active in the company's management throughout its business life.

Starting out as a service organization in 1931, the company has steadily enlarged its activities in the commercial refrigeration field, and now handles complete lines of equipment for such applications as ice cream making, soda fountain equipment, farm and home freezers, display and walk-in storage units, beverage coolers, and restaurant, market and florist refrigeration.

Ragan Refrigeration Co. is exclusive distributor in North Carolina for Super-Cold, Puffer-Hubbard and Pelco equipment, and handles Weber frozen food cabinets in the Piedmont section of the state.

PARAGON ELECTRIC CO. OFFICES MOVED

Paragon Electric Co., manufacturer of time controls, has moved its main office to Two Rivers, Wis., where its factory is also located.

ACRMA PUBLISHES NEW REFRIGERANT MANUAL

"Properties of the Commonly-Used Refrigerants" is a new publication prepared by the Air Conditioning and Refrigeration Machinery Association of Washington, D. C. With almost a hundred pages of text, chart, and tabular material dealing with ammonia, methyl chloride, "Freon-11," "Freon-12," and "Freon-22," this comprehensive and authoritative manual on these refrigerants will meet a widespread demand from users and installers of refrigeration and air conditioning equipment. Price is $1.00, postpaid.

A revised and substantially-expanded edition of the ACRMA Equipment Standards is scheduled for publication by the association late this summer.

Marsh Standard Pressure Gauge

Marsh Standard Compound Gauge

Marsh Gauge with Corresponding Temperature Scales

Marsh Ammonia Gauge

Marsh Remote Reading Dial Thermometer

MARSH *Spells*

Lasting Accuracy

Every field has its leader, but few are the fields where a name is so synonymous with absolute dependability as is the name Marsh on a pressure gauge or dial thermometer.

Producing gauges and thermometers that *spell* lasting accuracy involves laboratory control reaching into every step of production . . . advanced methods of forming bourdon tubes and obtaining jewel-like accuracy in sectors, pinions, staffs and bearings . . . methods of gauging and checking of each component so that the final assembly must be right and *stay* right.

***Ask* FOR THIS NEW BOOKLET**

The Marsh Gauges and Thermometers commonly used in refrigeration service are illustrated here and completely described in a new booklet which fully covers their construction and service range. Write for your copy.

Use...

THE MARSH "SERVICEMAN"

Here is the accurate answer to that vital question, "What's going on behind the closed door?" The remote reading feature does the trick. Note below how the generous length of capillary tubing is coiled up in the case when not in use. The "Serviceman" is guaranteed accurate within one degree. It has endless uses—is one of the most important tools in the servicing kit.

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PEOPLE . . .

Continued from page 39

Electric Co. Mr. Gray formerly was a top-ranking salesmen of Westinghouse commercial equipment.

●

Walter W. Lige has been appointed manager of the Chicago branch office for Penn Electric Switch Co., Goshen, Ind., to succeed E. B. Maire, who has resigned. Before joining Penn, Lige was regional merchandise manager of Montgomery, Ward & Co.

●

Two new branch managers have been appointed by Perfex Corp. **Gil A. Churchill,** a Perfex employe from 1936 to 1942 who rejoined the organization last June, has been named manager of the Chicago branch. **B. F. Werb,** a veteran of 20 years in the controls industry who joined Perfex in 1940, has been named manager of the newly formed Milwaukee branch.

●

Paul A. Hunker has been named commercial sales manager of Refrigeration Corp. of America, wholly owned subsidiary of Noma Electric Corp., to direct national sales of the company's commercial refrigeration and air conditioning products. Mr. Hunker had spent the past seven years as general sales manager of Nathan Straus-Duparquet, Inc.

●

Jonathan H. Winters was recently appointed a member of the staff of H. A. Malcom, general sales manager of Airtemp division, Chrysler Corp. He previously had been coordinator of field sales, engineering and service activities for Airtemp Sales Corp. in the Kansas City area.

Burned to the Ground

On Saturday afternoon, May 4th, the new building housing our factory and general offices burned to the ground. The destruction was complete. We were able to save only our financial records, which were in a fireproof safe. The fire destroyed our entire stock of raw materials, our machinery, and our goods in process.

And we lost something even more important and more difficult to replace—our files of correspondence, drawings, and orders, and a list of more than five thousand dealers, jobbers, and prospective users of our products. These records cannot be replaced without your help.

If you have ever had correspondence with us or have placed orders with us, please send us copies of your letters and orders and copies of our replies. We offer you, in return, our assurance that we are doing all we can to be able to serve you soon.

During the next few months we are going to be busy rebuilding, with headquarters at temporary offices in Schiller Park. As soon as it is humanly possible we shall be manufacturing fine refrigeration equipment for you. In the meantime, send us your inquiries. Our products will continue to be sold only through recognized, established refrigeration outlets.

ALBERT H. BROMANN JR.

SCHILLER PARK, ILLINOIS

Complete Cooling Rooms • Industrial and Commercial Freezers • Cold Storage Doors • Direct Draw Beer Dispensers

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Business Builders

They're Profitable

TEXACO CAPELLA OILS are kept in perfect condition in re-sealable containers—convenient 1-qt., 1-gal. and 5-gal. sizes, designed for attractive display. Because they assure customer satisfaction, they bring you repeat business, increased sales and profits.

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TEXACO CAPELLA OILS are always uniform in quality, highly stable, moisture-free, with very low pour tests. They resist gumming and sludging, assure efficient, economical operation of all types of compressors and do not react with refrigerants. Leading manufacturers of air conditioning and refrigerating units use, recommend or approve them.

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YOU can get *Texaco Capella Oils* in every needed viscosity, and Texaco's FREE LUBRICATION GUIDE shows which grade to use for each of 55 electric refrigerating and 32 air conditioning units. Send for your copy today. Bind in service manual or use as wall chart.

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FOR prompt delivery of *Texaco Capella Oils*, just call the nearest of the more than 2300 Texaco distributing plants in the 48 States. The Texas Company, 135 East 42nd Street, New York 17, N. Y.

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FOR ALL AIR CONDITIONING AND REFRIGERATING EQUIPMENT

TEXACO

TUNE IN THE TEXACO STAR THEATRE EVERY SUNDAY NIGHT STARRING JAMES MELTON WITH HIS GUEST, ED WYNN—CBS

Better be SAFE with a CESCO Mask

• Don't take chances with hazardous refrigeration fumes. There's a way to be safe—use a CESCO Healthguard Mask.

No. 605 FUME KIT gives 3-way protection at lower cost

CESCO's Healthguard Fume Kit (No. 605) offers *triple protection* to refrigeration servicemen. Quick-change filter cartridges assure safety against ammonia, methyl-chloride and sulphur-dioxide fumes . . . *all in one convenient carrying case.*

The soft molded rubber face-piece of the fume mask, and the adjustable headgear assure a gastight, comfortable fit for every wearer. Large safety glass lenses give perfect visibility.

The CESCO Healthguard Kit provides *economical* protection because it is *moderately* priced.

Write for CESCO'S *No. 605 Safety Bulletin for complete information*

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FOR SAFETY

THE PRACTICAL Refrigeration Engineering MANUAL . . . by Harold Smith

XII. Candy and Chocolate Processing

PART III

THE following example will outline the general procedure necessary to find load requirements on an enrober tunnel. We will not give an example of load figures on a package room or a storage cooler, as they are to be figured in the same way as any other insulated rooms. However, in making coil selections evaporators should be selected with the necessary capacity based on unit capacity @ 20 to 25 deg. T.D. so as to maintain a relative humidity of from 45 to 55%.

Below are the load figures for an enrober tunnel:

HEAT LEAK LOAD

Tunnel Dimensions: 50′ x 3′ x 3′ = 450 sq. ft.
2″ Insulation: "K" factor: .15
Outside Temperature: 90°F.
Inside Temperature: 50°F.
Temperature Difference: 40°
450 x .15 x 40 = 2700 B.T.U./hr.

PRODUCT LOAD

1 lb. Candy to each foot of belt
50 lb. Candy to 50 ft. of belt—10 min. travel
Product "K" factor: .92
Temp. reduction: 90° — 65° = 25° T.D.
6 belt loads per hour
50 x .92 x 25 x 6 — 6900 B.T.U./hr.

Heat Leak .....2700 B.T.U.
Product Load .....6900 B.T.U.

Total hr. load..9600 B.T.U.
Inside Air Temp. .....50 deg.
Refrig. Temp. .....25 deg.

Temp. Difference ...25 deg.

CONDENSING UNIT REQUIREMENTS

If condensing unit handles enrober tunnel only on 18 hour operation:

Total Refrig. load.9600 B.T.U. per hr. 24 hr. basis or 12,800 B.T.U. per hour
18 hour basis

Condensing unit required must have capacity of 12,800 B.T.U. per hour @ 25° suction gas temperature A1-H.P. to 1½-H.P. air cooled condensing unit would be indicated. Forced draft unit required must have capacity of 12,800 B.T.U. per hr. @ 25° T.D., or a cooling unit rated at 10,240 B.T.U. @ 20° T.D., or 7,680 B.T.U. @ 15° T.D.

ENROBER TUNNELS

Enrober tunnels usually are built along conventional lines. The conveyor belt, usually stainless steel sheet, is of the endless type, turning on rollers located at each end of the tunnel. These rollers are geared to a motor drive, which in turn keeps the belt in motion. A tunnel 45′ to 50′ long is usually used.

The belt is set to travel at a speed requiring approximately ten to fifteen minutes for the candy to travel from the enrober to the packaging room. During this travel period, the chocolate cover on the candy must be cooled from 90°F. to 65°F., a temperature reduction of 25°.

At a temperature of 65°F. the chocolate will set, and is easily removed by the packer as the end of the tunnel is reached.

FORCED-DRAFT COOLING

The conveyor belt is usually entirely enclosed within the tunnel, which keeps the belt at a temperature around 50° to 60°F.

A forced-draft convection unit may be set immediately above the tunnel, with the cold air outlet of the cooling unit directed into the main tunnel by a short

HIGHSIDE CHEMICALS APPOINTS AGENTS

Highside Chemicals Co., manufacturer of "Thawzone" and "Trace" for the refrigeration field, has announced the appointment of the following representatives:

George I. Boone & Son, 1775 Broadway, New York City, in the northeastern territory comprising the New England states, New York, New Jersey, eastern Pennsylvania, Delaware, Maryland, also including the District of Columbia.

Robbins - Greenwood Co., 3104 Main St., Houston, Tex., in the states of Texas, Louisiana and Oklahoma.

CHRISTY CO. OFFICES MOVED TO NEW SITE

Christy Co., St. Louis manufacturer of "Centraz" vapor-seal, is moving its offices and warehouse to 4464 Duncan Ave., according to W. T. Christy, president. The company formerly was located at 1530 Olive St.

connection between the two.

The return air to the cooling unit usually is built separate, but parallel to the main tunnel, and takes air from the package room direct for re-circulation through the unit cooler.

By using such an arrangement, the air temperature is held at a relatively close temperature range, reducing the refrigeration load.

The cool forced air circulating over the hot chocolates travelling on the conveyor belt removes the heat from the chocolate quite rapidly, causing the chocolate to set before reaching the package room end of the tunnel.

LOAD ON TUNNEL

The load for the tunnel is heat leak and product cooling. The product cooling load is pounds of chocolate per hour times "K" factor—approximately .92 x 25° T.D.

Some allowance must be made for loss of temperature at the enrober end of the tunnel. However, this is usually a small loss, particularly when the unit cooler is set at the enrober end of the tunnel and the cooled air is forced in the direction of the package room along with the belt travel.

Occasionally the tunnel is built with the return belt traveling outside the insulated tunnel. This increases the refrigeration load somewhat, as the belt picks up heat from the outside on the return trip, and this heat must be removed upon its re-entering the tunnel.

In all cases where conditions make it impossible or impractical for use of a forced-air convection unit large enough to handle the cooling load, it is advisable to install, on the ceiling of the tunnel, coils with pans to catch and carry away any moisture or drip.

These coils handle the heat leak and part of the produce cooling, reducing the load on the unit cooler. Naturally the simpler and less expensive job requires only the unit cooler to take care of the entire load.

AUXILIARY COILS

However, the auxiliary coils installed in the tunnel are sometimes very convenient, and can be so installed that they are used only under peak load conditions, using the unit cooler alone for cooling under standard or normal load conditions.

It is good practice to operate the enrober tunnel with a separate condensing unit, as there are times when the tunnel is not in use and operating expense usually will be lower with this arrangement.

PACKING ROOM

Refrigeration in the packaging room and storage cooler is required at all times, and can be installed to operate on a single condensing unit.

By using room thermostats and solenoid valves on the liquid lines to each room, close temperature ranges may be held at all times.

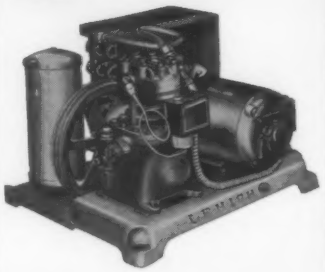
Unit coolers are, as a rule, used as evaporators in both rooms. However, finned type coils with open pans frequently work out nicely in the storage cooler.

When hand-dipping of the chocolate is employed, allowances must be made for the heat generated in the dipping and packaging room, used to keep the chocolate at the proper consistency for dipping purposes.

An operator dips the candy by hand in the chocolate bath, and the candy is then placed on a rack until set. This is a more expensive method of placing the chocolate covering on the candy, and most higher priced chocolates are covered by this method.

Gas or electric burners are usually used under the chocolate to keep the coating at the proper dipping temperature.

M&E EST. 1866 Lehigh



A UNIT THAT YOU CAN BE PROUD TO SELL . . . OR INSTALL IN YOUR OWN EQUIPMENT

"M & E" Lehigh Condensing Units are a product of one of the largest and most completely equipped refrigeration manufacturers in America—a plant with almost a quarter century of designing and producing experience.

These rugged, compact, smooth-running units bring you a score of thoroughly proven post-war improvements. They are built for the full range of heavy duty commercial uses—low, medium and high temperature.

Parts are interchangeable over the complete size range resulting in greatly reduced inventory requirements. Servicing problems have been minimized by many practical innovations.

COMPLETE LINE TO INCLUDE
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Data Sheets on Current Models Mailed on Request

M&E EST. 1866 REFRIGERATION DIVISION
Lehigh FOUNDRIES, Inc.
Plant: LANCASTER, PA.

TRUCK . REFRIGERATION . . .

Continued from page 31

the morning, when the plug-in connection is pulled and the truck starts rolling for the day, the open coil or flat plate takes over and replenishes the refrigeration as it is used. This action, of course, accomplished by the compressor which is connected to the truck's drive-shaft mechanism.

One Ryan truck employs three Kold-Hold hold-over plates, and no open coil or quick-action plate. Here the procedure is the same, except that on the next day's run, all three hold-over plates operate off the shaft-driven compressor.

Mr. Ryan says that often with this truck plugging-in overnight is not necessary. Hold-over built up during the day, after the one initial pull-down, not only carries the load but also provides enough additional capacity so that the truck can be used for extra cooler-room space overnight. The next day it is started merely by driving out of the garage, without having used the electric motor plug-in.

Cross-Country Hauls

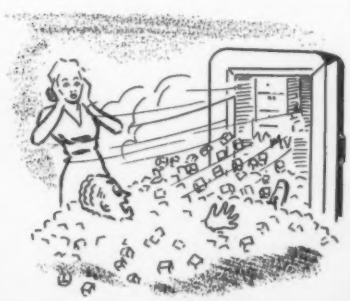
Though there has been no specific occasion to use this particular truck for cross-country or unusually long hauls, the logical conclusion is that the truck could be operated on the power take-off indefinitely without returning to the original or any other plug-in source.

The drive-shaft mechanism is preset "fast" for use on city delivery, and "slow" on country or long-haul delivery. However, the setting may be changed manually from one to the other at any time routing schedules for any truck are changed.

The Ryan trucks are well-insulated. While the insulation is largely the problem of the body-builder, Mr. Ryan's experience with his own trucks indicates that a minimum of 4 inches of "Dry Zero," or its equivalent, should be used.

Some specific points, as covered in U. S. Patent No. 2,382,667 on this unit, include a speed reducer "which will give the most efficient speed for the compressor when the vehicle is running at its normal rate of speed; for instance 40 miles per hour. It has been found entirely practicable to operate this refrigerating system without thermostatic controls, but such thermostatic controls for the system may be used if conditions require them."

Also, it is interesting to note that "the compressor and the fans may be operated independently, either by the vehicle or the electric motor, without changing the mechanical driving connections. This is permitted by the unidirectional clutches. In other words, when the compressor is being driven by the propeller shaft of the vehicle, the clutch will permit the sheave to overrun the shaft of the motor, and when the compressor is being driven



"Doggone it! I told you not to mess around with that cold control!"

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EVERY
NIBCO WROT Fitting
IS LIKE EVERY OTHER ONE
Formed under tremendous pressure in one step from straight copper tubing. That's why every NIBCO WROT Fitting is like every other one. True roundness, with plug-gauge tolerances, assures perfect joints. Impervious to gases, not affected by vibration . . . ideal for air conditioning and refrigeration work. Many types and sizes, and special tubular parts. Tell us your problems . . . we'll help you find the answer.
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by the motor, the clutch will permit the shaft to be overrun."

The patent further states that "the axis of the shaft of the compressor and the driven shaft of the speed reducer are crosswise of the vehicle, or normal to the propeller shaft of the vehicle. This minimizes vibration. It will also be noted that the speed reducer is mounted to one side of the propeller shaft, while the compressor is mounted on the opposite side of the propeller shaft. This gives a balancing effect and also minimizes vibration."

In road use, when the unit is operating from the motor vehicle, the unidirectional clutch permits the device to turn freely, without revolving the rotor of the motor. Likewise, when the unit is operating from plug-in on the motor, the clutch permits the compressor to run without producing any torque on the driven shaft of the motor vehicle.

Satisfied with the dependable performance of these refrigeration units on his own trucks for so many years, Mr. Ryan now plans to produce them in quantity and in a complete range of capacities for sale to other users of refrigerated truck service.

LOCKER SUPPLIERS GROUP ADDS TWO NEW MEMBERS

Two new contractor members—Valley Refrigeration Co., Tulare, Calif. and Reilly-Benton Co., New Orleans—have been added to the roster of the Frozen Food Locker Manufacturers & Suppliers Association.

BRANCH STORE OPENED BY SOUTHWEST JOBBER

United Refrigeration Co., San Antonio, Tex., now is operating a branch store at Corpus Christi, Tex.

SALESMEN who attend the kitchen-planning schools now being conducted by American Central Mfg. Corp. are really put "under the hammer" in the three problem rooms which company officials have devised to help them pick up the practical phases of the work.

First two rooms, called the "Duck Soup" room and the "Piece de Resistance" room, respectively, are designed to enable the students to work out all the various objections that might sometime appear in kitchens.

The "Dagwood Special" room, in which final exams are held, has been laid out incorrectly, on purpose, and the students' job is to measure and plan the kitchen as it really should be.

CHICAGO RSES NAMES NEW OFFICERS

Fred Stevens has been elected president of the Chicago chapter of the Refrigeration Service Engineers Society for the current year. Other officers elected are: Edward Ricco, 1st vice president; John Hager, 2nd vice president; John O. Habich, treasurer; E. W. Scott, secretary; Dwight Orr, chairman of the educational committee; and P. H. Doyle, sergeant-at-arms.

SQUARE D EARNINGS

Net sales of Square D Co. totaled $40,300,000 in 1945, approximately the same as in 1944, but a decrease of 11.6% from the all-time peak in 1943, F. W. Magin, president, reported to stockholders in the company's annual statement. 1945 profit was $1,621,462, a decrease of 19.4% from earnings for 1944, which totaled $2,011,464.

The 1945 earnings were equivalent to $3.53 per share compared with 1944 earnings of $4.58 per share.

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that removes GREASE, GRIME, PAINT without the use of water!

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What Control Applications ARE YOUR PROBLEMS?

The following are a few of the many applications on which White-Rodgers Hydraulic-Action controls have been used:

- Food freezing
- Milk cooling
- Air conditioning
- Ice making
- Water cooling
- Food preservation
- Industrial refrigeration
- Photographic processes
- Beer cooling
- Fur storage

TYPE 151 #6 heavy-duty, line-voltage Room Thermostat for use with unit cooler and air-conditioning installations. No relay necessary on most applications. Hydraulic-Action.

TYPE 1533 #10 Dual Pressure Control combining in one case, controls for both high-side safety and suction pressure. Cover removed showing uniform calibration of dials.

TYPE 1629 #11 Selective Range Control with visible dial and external lever adjustment. Widely used on vegetable and meat display cases and beverage coolers. Hydraulic-Action.

ON THESE and many other temperature and pressure control applications, which might otherwise have required special controls, White-Rodgers *standard* controls have done the job.

Operated by Hydraulic-Action, every White-Rodgers temperature control is capable of a wide variety of applications—yet each affords ease of installation, exceptional accuracy and dependable performance.

Look for a *standard* White-Rodgers control to handle *your* special control problem. Write today for air-conditioning and refrigeration catalog and installation data.

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Controls for Refrigeration • Heating • Air Conditioning

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FORGED FLARE NUTS AND FITTINGS

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Send in your old unit board. Just unfasten suction and liquid line, loosen the bolts holding the board and ship complete. All we ask is that the pumps are in fair shape and all parts are with them.

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Stators—thermostats—relays—meters—condensers—electrolytic condensers.

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aged refrigeration, Mr. Toennes believes.

Just being able to recommend the most economical location, in many cases, could cinch the sale. On the other hand, from a business-building standpoint, a cooler might be recommended for installation in an out-of-the-way drug store location which up to then had produced a negligible amount of sales volume. Proper displays around the unit might make this spot compare, sales-wise, with the up-front store area.

Points like this, Mr. Toennes points, are just a few of those that need to be worked out to crack the larger market that he's confident exists for this product.

For example, here are some points picked up from a recent installation at Kemper Military Academy, Booneville, Mo. Water coolers were installed on each floor, with the result that lost time between classes was reduced so much that the problem of "Johnny-come-lately" stragglers was practically eliminated. Also, the "free drink" demand at the school's refreshment stand dropped to almost nothing, and the stand was able to give better service to "cash customers" during between-class periods.

EVER have trouble locating a refrigerant line in some dark corner, wall space, or other out of the way place? Then you might be interested in knowing that a phosphorescent paper tape now is being marketed. Cream colored in daylight, this tape glows with a blue-green color in the dark. Wouldn't a bit of that do the trick?

Few factories have enough electric water coolers although most of them have some, Mr. Toennes says. Here is a profitable place for sales effort, because it is comparatively simple to figure out new locations that will save steps and time for employees. When that is done, the new equipment will soon be paid for out of savings.

Another point to be used in selling water coolers to factories is the fact that the temperature can be set at a safe coolness and maintained automatically. Properly cooled drinking water is much more healthful than is ice water or warm water. Ice water, "straight", can be a dangerous thing in hot weather.

Woodman Engineering sells all types of packaged refrigeration. The company maintains a modern engineering department and its own drafting department. These operate independently of the other departments. The entire operation at Woodman's is departmentized; each department stands on its own feet and pays its own way, and the departments buy from each other.

Thus the plumbing and steam-fitting department may install units for the other departments and the electrical construction department will install electrical equipment. The customer will only get one bill—but the servicing department will bill the selling department for the installation.

BUYS NEW BUILDING

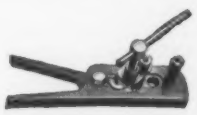
Allan L. Mahan, Omaha, Neb., dealer, has purchased a building at 5001 Leavenworth St. for $11,000 and plans to set up a modern sales and service store for refrigerators and other home appliances.

"SUPERIOR" TUBING 4 WAYS BETTER

Whatever use you put versatile copper tubing to, you must remember that dirt, oil, compound, or saw filings will hamper and some times cause failure to your own products or installation. For this reason, Penn points with justifiable pride to our unique, dirt killing washing process which tests and cleans in a single operation. For the highest quality clean tube think of "SUPERIOR". Remember! It's the inside that counts.

PENN TUBING IS "SUPERIOR"

Are you missing out on PAPCO? Fastest Flaring tool you ever used.



If you haven't already placed your order for the new Papco Tool, which is revolutionary in idea, tops in performance, and the most efficient tool for tube flaring that has ever been produced, write today for Papco No. 400 Bulletin.

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Defrosting AUTOMATICALLY CONTROLLED

● BY PARAGON TIME SWITCHES

Why worry about defrosting? Here's a Switch that provides dependable time control for SHARP FREEZERS in all types of automatic defrosting . . . in locker plants, dairies, breweries, packing houses and commercial refrigeration. Regular defrosting increases efficiency and reduces operating costs.

The PARAGON LINE offers service proved . . . precision . . . quality Time Switches and Timers . . . rugged and durable . . . with a great performance record.

Paragon can produce Time Controls for any system such as Freon, brine, ammonia, etc., regardless of temperature and whether defrosting is done by hot vapor, electric heat or water spray. Put your defrosting problems up to Paragon engineers.

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Paragon Two Rivers WISCONSIN
BUILDERS OF ELECTRICAL EQUIPMENT SINCE 1909

Over the COUNTER

Editor's Note: Exactly how did the refrigeration equipment wholesaler come to achieve his present important function in the industry? How do his functions differ from those of the franchised distributor? For the information of newcomers to the refrigeration field to whom this distinction is a new one, as well as for those others who may have been somewhat puzzled by this distributor-wholesaler relationship, "Over the Counter" this month and next is being devoted to a brief history of how this difference in distribution came about.

THE distribution of refrigeration equipment, accessories, parts and supplies from the numerous manufacturing sources to the ultimate consumer is somewhat diversified and quite frequently confusing to people not closely associated with the refrigeration industry.

Probably a review of the commercial evolution in this field, starting back in the early 20's, when low pressure type refrigeration equipment first appeared in general use, will best serve to enlighten the reader regarding the various trade channels in the industry and their development as the industry started to grow.

Prior to the introduction and development of low pressure refrigeration for home and commercial use, the field of mechanical refrigeration was largely covered by some eight or 10 manufacturers of mechanical equipment using ammonia as a refrigerant.

At this period mechanical refrigeration was principally used in large commercial places such as ice plants, breweries, large hotels, cold storage warehouses, milk and ice cream plants, all requiring refrigeration in large tonnage for which these ammonia plants were ideally suited.

Ammonia plants, operated under relatively high pressures, required heavy equipment and castings, large motors, and steel or iron piping with large hand control valves and fittings. The size and cost of such equipment made its usage prohibitive for small commercial and home purposes.

This picture started to change in 1918, when low pressure refrigeration for home use was placed on the market. Low pressure systems, using sulphur dioxide and methyl chloride for refrigerants, could be built with

"That's O.K. ma'am— Service is our motto!"

lighter metals and operated with motors.

Copper tubing was used for piping in place of iron and steel pipe. Small accessories for automatic operation were readily adapted for use with this smaller equipment. The cost of the complete plant was decidedly less.

In the first 10 years the low pressure refrigeration units were manufactured by a limited number of large manufacturers who closely controlled distribution of their product through the various channels into the hands of the consumer.

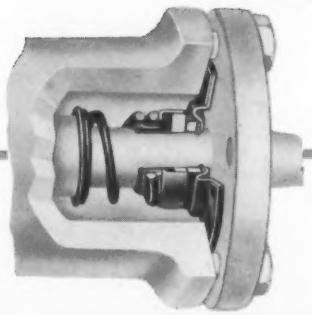
These manufacturers, in most instances, followed a similiar distribution plan along the following lines. The manufacturer divided the United States into distributing areas often comprising an entire state and some-

THE ROTARY COP SAYS:

The Construction of ROTARY SEALS is as simple as 1+1=2

WEBSTER defines the word Simplicity as follows: "Quality or state of being free from complexity, intricacy or elaborations, *CONSISTING OF FEW PARTS.*"

The above is a perfect definition of *ROTARY SEALS* which have won world wide recognition for domestic and commercial service. *ROTARY SEALS* are constructed on the principle uppermost in the minds of research engineers—"THE FEWER WORKING PARTS, THE LESS DANGER OF TROUBLE."



ROTARY SEALS are available for over 752 models of refrigerator assemblies

The Construction, Installation and Operation of *ROTARY SEALS* is as simple as first grade arithmetic and just as easy to understand. That's why *ROTARY* is number one choice of service men from coast to coast. For dependability, long life and low cost always use *ROTARY SEALS.*

ROTARY SEAL COMPANY

2020 North Larrabee St. Chicago 14, Ill.

Canadian Office: 382 Victoria Avenue, Montreal 8, Quebec, Canada

times several states. A distribution contract was made with a well organized merchandising organization, usually located in a large city within the distributing area.

This contract channeled all business in the area through the distributor, who usually worked on a wholesale basis, selling to dealers within the area who in turn retailed the equipment of the consumer.

Usually the distributor either acted as an exclusive dealer in the city in which the distributor's offices were located, or as a joint dealer with other appointed dealers in the city.

The franchised dealer purchased the original equipment, and other materials from the distributor, and trained and operated an organization of installation mechanics and service men to install and maintain the equipment in operation.

The dealer also employed salesmen to contact and sell the equipment to the consumer. Under this arrangement all original equipment parts and supplies came from the manufacturer of the equipment, and were channeled through the distributor and dealer to the consumer.

"You can take your head out now dear — I've found the ice bag."

CENTURY EARNINGS

Century Electric Co. for the year ended December 31, 1945 reports a net profit, after taxes, of $343,308, or 71½ cents per share outstanding, on sales of $14,481,000. Dividends totaling $214,394, amounting to 45 cents per share, were distributed to 657 shareholders during the year; the balance of $128,913 was added to surplus.

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CUTS YOUR COSTS!

● Here is a wonderful opportunity for operating men to find out the newest ways to cut costs throughout your plant by wider use of fast-working SKILTOOLS on both production and maintenance. Your distributor will hold a SKILTOOL CLINIC in your plant. You'll see all the new SKILTOOLS in action . . . see how they make countless jobs easier . . . how they *step up the hourly output per worker.* A specially trained SKILTOOL Engineer will accompany your distributor at your clinic and work directly with your foremen in selecting the right tool for the job . . . give valuable tips on tool care . . . assist your staff in bringing down increasing hourly costs!

SKILSAW, INC. 5033-43 Elston Avenue, Chicago 30, Ill.
Factory Branches In All Principal Cities

PORTABLE ELECTRIC SKILTOOLS MADE BY SKILSAW, INC.

Mail This Coupon Today!

SKILSAW, INC.
5033-43 Elston Ave., Chicago 30, Ill.
We would like to have our distributor conduct a cost-cutting SKILTOOL CLINIC in our plant on or about (date) .....
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Address .....
City ..... State .....

STOP REFRIGERANT LEAKAGE ..... *before it becomes dangerous!*

VISOLEAK detects even the smallest leaks before they cause damage to expensive refrigeration systems. Years of use prove it safe, economical, easy to use.

NEW CHARGING SET

The VISOLEAK Charging Set was developed to inject VISOLEAK, add refrigerant oil or re-charge sealed units. For use on all types of refrigeration systems without danger of introducing air or foreign matter.

Charging Set—complete with hoses $7.50
Filler only—without hoses 6.00

See your refrigeration supply jobber or write for complete information.

WESTERN THERMAL EQUIPMENT CO.
1701 W. Slauson Ave. Los Angeles 44, California

PROFIT-SHARING . . .

Continued from page 33

He is charged only for the parts which he actually uses in reconditioning the equipment, nothing for the equipment itself, and the balance of the re-sale price is split between the company and himself in the usual manner.

Under this arrangement it is obviously to the service man's best interest to work as well and as efficiently as he can, and also to do everything in his power to promote the sale of parts and equipment. And in return, his income is limited only by his own initiative, ambition, and ability.

Many of his service men, Mr. Warner reports, even work nights on their own time in an effort to line up prospects for new equipment sales and thereby boost their own incomes.

Labor turnover under such a plan, as might be expected, is extremely low. The top service man in the organization has been with the firm for 12 years, and others have been in the Warner employ for as long as eight or nine years.

They're Chosen This Way

Mr. Warner picks his service men with an eye to their sales ability as well as to their mechanical aptitudes and technical knowledge. Those men who prove to have the required combination of capabilities soon are earning enough to make them want to remain with the organization. The others just as automatically are weeded out by their own inability to earn a satisfactory income.

So great is the emphasis on sales in the company's service department that Mr. Warner declares any of his top-flight service men could step into the company's sales department tomorrow and do just as creditable a job there as they do in the service end.

Obviously some calls, by their very nature, are more lucrative than others, offering greater possibilities for new equipment sales and consequently increased earnings to the service men. Generally the nature of a call can be pretty well analyzed from the information provided over the phone and entered on the call slip. On the basis of this information the service manager attempts to allocate the calls as equitably as possible among the various service men.

On repeat calls an attempt is made insofar as possible to send the same service man who handled the call in the first place. In this way the service man gets to know the equipment and the customer comes to have confidence in the service man's ability to handle the job. In fact on some of the contract service agreements handled by the company it is expressly designated that a certain service man shall handle all calls for that customer.

How well does this incentive payment plan work out in actual practice? The continuing growth of Mr. Warner's business is a pretty good answer to that question. So is the fact that every one of the six service men who were working for him on a regular full-time basis last year earned more than $5,000 for himself, and his top ranking service man made nearly $10,000.

And there's nothing Mr. Warner likes better than to see his service men making that kind of "folding money". For, as he succinctly points out, "every time one of them makes $5,000 for himself he makes better than $6,000 for me."

4 PERFECT REASONS . . .

. . . why TEMPRITE will best fit your beverage cooling applications

EFFICIENT—Extremely small size with unusually large capacity. Will fit all fountains and beverage dispensers.

COMPLETE—Equipped with temperature control valve and refrigerant-feed valve. No extra valves to buy or install.

ACCURATE—Perfect temperature control at all times with Temprite's patented, pressure operated, control valve.

SAFE—Beverages flow through all stainless steel coils, no chance of metal contamination.

Competitively priced, these Temprite cooling units, especially designed for soda fountains and beverage dispensing applications, offer to manufacturers and distributors the ultimate in quality, performance, and service free operation.

Write today for new literature and specifications.

A model available for every application. Will cool 1, 2, or 3 different beverages as desired

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TEMPRITE PRODUCTS CORP.

Originators of Instantaneous 80° 40° *Liquid Cooling Devices*

41 PIQUETTE AVENUE DETROIT 2, MICHIGAN

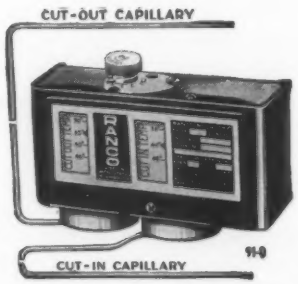
A Man to Ride the River with . . .

Along the Rio Grande, in the wild and woolly days of cowpunchers, gun slingers and bandits, there was a saying—"A man to ride the river with is a man you can trust"—for obvious reasons.

Ranco Refrigeration Controls—for obvious reasons—are the controls you can "ride with" and trust. Ranco never lets you down.

Sturdy construction out of best materials—skillful workmanship—beauty of design—careful inspection at every step of machining and assembly . . . these give Ranco Controls their accuracy and dependability and make Ranco the Trade Mark of Precision.

When you install a Ranco Control you gain a satisfied customer.



Type 91-0—Assures uniform fixture temperature, uniform high relative humidity and completely automatic defrosting of the coil regardless of weather or load conditions. For use on either single or multiple unit systems. For walk-in coolers, display cases, florists' boxes—for preservation of all perishables.

See Your Jobber

Ranco Inc.

COLUMBUS 1, OHIO

"Let's share our knowledge—exchange our experience"

Edited by
Warren W. Farr

Tips on Cleaning Air Conditioning Equipment

The familiar saying, "a new broom sweeps clean," implies that the old broom doesn't do a very satisfactory job. The same thing can be said of air conditioning systems that are clogged with dirt and other matter. You can help your customers get the utmost efficiency from their cooling systems—and add extra dollars to your own income—by seeing that their equipment is in top condition for the cooling season. Here are some suggestions that you'll find helpful:

Air filters, for example, reach a saturation point after a period of use, where they are incapable of straining the dirt, dust and lint from the air passing through them. Filters may be cleaned by either of two methods: 1. *tank immersion*, using a suitable solvent which emulsifies and loosens the deposits; 2. *steam cleaning*, done with the filters in place. In this method, best practice is to clean from the side opposite to the intake side.

Electrostatic air filters may be cleaned by the steam method, as may *refrigerant coils* and other equipment subject to greasy dirt deposits. Special steam guns are available for this.

Air washers, evaporative condensers, cooling towers, etc. all are subject to slime growths, which cling to pipes, eliminator plates and other surfaces, impeding water flow, clogging spray nozzles, reducing fittings and valves, and sometimes causing odors which contaminate the air.

At regular intervals, *air washers* and *evaporative condensers* and occasionally the entire system, should be cleaned to remove slime and sludge accumulations, by means of a suitable detergent solution circulated through this part of the system. In hard water areas, *scale* is also a problem affecting *evaporative and shell-and-tube condensers, compressors, water coolers*, etc. Scale cuts down heat transfer efficiency of these units, and should be removed by a solvent circulated through the equipment.

In *closed type air conditioning systems* slime and scale accumulation can be reduced by adding a bactericidal compound to the recirculating water. Your refrigeration supply wholesaler will be able to help you with any problem you may have in connection with this work and the materials required for it.

WHEN air leaks in commercial walk-in or reach-in boxes are discovered, judicious use of readily available materials like lamp wicking and plastic cement will stop these leaks after other materials have been tried and failed.

Also, in a number of wet-type beverage coolers, pinholes rust through and cause leaks. This condition can be stopped by putting on a thin layer of plastic cement, and allowing it to dry. This material also acts as an excellent metal preserver, and at a low cost, too.

C. L. Burton, Conway, S. C.

TO EXPEDITE adding oil to a compressor and eliminate the common dangers of allowing dirt or moisture to get into a gallon can of oil, I used a ¼" flare x ⅜" pipe coupling, drilled out the pipe end to ¼", inserted and silver soldered a length of ¼" copper tube. The opposite end was cut to a length that just touches the bottom of the can after beveling when the already soldered end rests on top of the can. Then I soldered both the fitting and tube to the top of the can. Capillary action will hold the solder in the joint while the apparatus is being soldered to the can. The hex on the fitting can still be used to place a wrench on for tightening a charging line or a dead head or seal cap when the can is not in use.

T. H. Rismiller, Dayton, Ohio

Water Cooler Servicing: Open Thermostat

If the thermostat on a water cooler you are called on to service is found to be open, check for the following:

a. Short circuit in fan motor.

b. Short circuit in compressor stator.

c. Short circuit in capacitor. (Remember to discharge the capacitor by placing a screwdriver blade across the terminals before you begin to work on it).

d. Short circuit in transformer.

e. Probable cycling on starting winding. The voltage should be checked in this case, after replacement is indicated.

IN MAKING service calls on refrigeration and air conditioning equipment it is almost impossible to carry every size belt that may be required. In addition to the popular sizes of belts, I carry about 100 inches of "Link Belt" with me in both "A" and "B" widths.

In a jam—and it usually is a night or on a Sunday—the belt you have is either a little too short or a little too long. With the Link Belt, any length you might need in an A or B width can be made in a few minutes.

You can return to the job in a day or so with the proper size belt, and return the Link Belt to your stock.

B. R. Montalbano, New Orleans

What Do You Know?

The annual meetings of the Interprovincial chapters of Refrigeration Service Engineers Society always

develop, through the "Information Please" sessions which have become a regular part of the programs, a wealth of worthwhile information for the servicing and installing contractor.

This year's program, which this department was fortunate enough to attend, was no exception. Here are some of the questions and answers; we're sure you'll find in them the solutions to some of your everyday problems:

How is it possible to clean serrated fin coils (forced air) after one year's operations?

A. Forced convection coils can be cleaned in the same manner in which air-cooled condensers are cleaned; namely, using air pressure or CO_2 to blow off the accumulated lint and dust.

How should we check for moisture in a Freon or methyl system?

A. There is no known method by which a service man can check for moisture content in a Freon installation. Usually moisture is indicated by freezing out at the point of expansion causing failure of the liquid control.

Prevention is better than cure. When the installation is made the system should be thoroughly evacuated to at least 28 inches of vacuum and it is a good plan to install a silica gel drier as insurance against moisture trouble.

A QUICK method of clearing shorted control lead wires on Grunow machines is to bore a ⅜" hole through the back of the cabinet directly in line with the hole in the inside of the cabinet, through which the thermostat wires enter. This hole is quite large, as the ½" suction line and the liquid feed line also enter at the same place. Cover all except ½" of the drill bit with a piece of ½" tubing. This will prevent the drill from coming in contact with the refrigerant lines when it pierces the outside back of the cabinet.

Make about a foot of No. 12 copper wire into a needle and thread the new control cable through the ⅜" hole from the outside in. Attach the outside end to the control box, the end inside the cabinet to the thermostat.

M. E. Smoyer, Kansas City, Kan.

In using cold plates in a farm or home freezer, how should they be located?

A. Two plates may be installed lengthwise in the cabinet either tight to the liner or one or two inches away. If the plate is installed tight to the liner that side of the plate will only have to remove the small amount of heat leakage through the walls of the cabinet. If the plate is installed one or two inches away from the liner, some increase in capacity is obtained but the useable storage space of the cabinet is cut down considerably and this item is of great importance. Either type of installation will work satisfactorily.

With an indication of oil in a low side float, what is the suggested remedy?

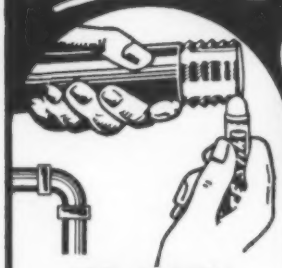
A. Where you have an indication of an oil-logged evaporator there are two things we should keep in mind: (1) that the compressor has been robbed of lubricating oil, and (2) that the conditions in the evaporator are not correct for the return of the oil down the suction line to the compressor.

The return of oil from a low side evaporator is dependent on the return of the refrigerant under normal conditions. If the installation is short of refrigerant this could cause an oil logging condition. If the float calibration is low this also will cause an oil logging condition by blanketing the refrigerant and reducing its boiling effect.

What percentage of capacity reduction would result by using a ⅝" suction line instead of 1⅛" when the load is 1½ tons and desired temperature is zero, and the length of the suction line is 35 feet?

A. The capacity will be reduced by more than 50% and on low temperature applications the effect would be even worse. It should be noted that two ⅝" suction lines have considerably less suction volume area than one line of 1⅛".

NOW—PIPE JOINT COMPOUND in Stick Form



NO LEAKS!

Just rub 3 or 4 strokes across pipe threads. It spreads and fills threads when turned.

FOR ALL THOSE PIPE INSTALLATION AND REPAIR JOBS

Always Ready For Instant Use

ECONOMICAL
HANDY . . . CLEAN

Tested and Fully Approved by Independent Laboratories and Industry.

NO MESS
NO BRUSH
NO WASTE

ASK YOUR DEALER OR WRITE US

Note these FEATURES

- ★ Withstands Freon, methyl chloride, butane, propane and other refrigerants, oil, air, water, brine, etc.
- ★ Lubricates and completely seals pipe joint threads, nuts, bolts, gaskets, turnbuckles, etc.
- ★ Contains no lead. Contains no injurious ingredients.

Lake Chemical Company

Patented Reg. U. S. Pat. Off.

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FIVE DOLLARS REWARD

WILL BE PAID by THE REFRIGERATION INDUSTRY for any information on installation or servicing procedures and short-cuts accepted for publication in HERE'S HOW, The Service Man's Department.

Send your suggestions on shop equipment and methods, tools, or other ideas to HERE'S HOW EDITOR, c/o THE REFRIGERATION INDUSTRY, 1240 Ontario St., Cleveland 13, Ohio.

WEATHERHEAD ISSUES JOB ANALYSIS MANUAL

A complete working manual on the technique of job analysis and evaluation in the clerical, technical and administrative fields has been issued by The Weatherhead Co., Cleveland.

The 35-page manual, a complete, practical working manual of salary job evaluation, explains in detail the procedures used, and is designed to enable interested companies to install the program with their own people without aid of outside assistance.

The textbook has been written by Charles S. Mattoon, director of industrial relations of Weatherhead.

Copies can be secured without cost by management executives requesting it on company stationery by addressing The Weatherhead Co., 300 East 131st St. Cleveland 8, Ohio.

NEW SYRACUSE FIRM

The Excelsior Equipment Co., 308 S. Clinton St., Syracuse, N. Y., has been organized for the sales and service of commercial refrigeration equipment. The new company has taken over the assets and equipment of the Waters Equipment Co. W. J. LaPloof is president; M. J. Rose, vice president and treasurer; and R. J. Wall, secretary.

Photo by Austin Jones, Kerotest Mfg. Co.

In good spirits at the opening of the new Toledo branch of Williams & Co., refrigeration supplies wholesaler, are (left to right): Leo Binssonnette, counter man, John N. Blaine, refrigeration manager of all Williams branches; George J. Schmitt, manager, Toledo branch; Arnold Kibby, office manager; Robert A. Beam, refrigeration manager.

LOCKER CLINIC HELD

Texas A & M College Extension Service recently sponsored a freezer locker clinic at Claude, Tex.

Roy Snyder, extension meat specialist, and Gwendolyne Jones, specialist in food preservation, prepared the program. Among subjects discussed were new federal wage and hour laws in relation to Texas locker plants, preparation of vegetables and fruits for freezing.

STOP RUST
WITH
CARTER'S RUST PREVENTIVE!

• EASY TO APPLY •

Requires no heating or mixing. Can be applied with spray gun or brush. Black color dries in four to six hours with high gloss, and does not lower BTU conductivity.

• MANY USES •

For all metal surfaces, such as pipes, tanks, condensers, ice cans, centrifugal pumps, etc. Resists vibration and weather. Great elasticity. Flows easily. Will not crack or peel.

• COVERAGE—COLORS •

One gallon covers approximately 300 to 350 sq. ft. We can furnish Carter's Rust Preventive in Gray, Red, Green, Aluminum, Clear or Black in the following containers: 60 gal. drums, 40 gal. half drums, 20 gal. steel kegs, 10 gal. steel kits, 5 gal. pails, one gal. containers (12 to a case).

GUARANTY

Guaranteed to do everything we claim for it in your own plant under your own conditions.

Send for circular. Distributorships Open. Write us.

CARTER MFG. CO.

1720 Columbus Rd., Cleveland, Ohio

STANGARD

Prime Surface

COLD PLATES

For Maximum Refrigerating Efficiency

THE STANGARD-DICKERSON CORP.

46-76 Oliver Street • Newark 5, N. J.

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INDEX OF ADVERTISERS

THE REFRIGERATION INDUSTRY
JUNE, 1946

Aerovox Corp. 68
Alco Valve Co. 25
American Brass Co. 23
American Coils Co. 15
American Injector Co. 57
Ansul Chemical Co. 20
Theo. H. Audel Co. 55
Automatic Products Co. ..... Cover 3

Bell Engineering Co. 11
Bonney Forge & Tool Works 4
Albert H. Bromann, Jr. 63
Bush Mfg. Co. 7

Carter Mfg. Co. 79
Chase Brass & Copper Co. 53
Chicago Eye Shield Co. 65
Chicago Metal Hose Co. 58
Chicago Seal Co. 59
Cordley & Hayes 59
Curtis Refrigerating Machine Division 12

Davison Chemical Co. 51
Detroit Lubricator Co. 22
Dole Refrigerating Co. 70

Electric Power Equipment Co. 34
Electrimatic Division 70
Engineering Service, Inc. 47

General Electric Co. 21
Grunow Authorized Service 70

Handees Co. 47
Henry Valve Co. 14
Hinhside Chemicals Co. 24
Holl-Ines Distributing Co. 54

Jarrow Products Co. 47

Kerotest Mfg. Co. 10
Kinetic Chemicals, Inc. 6
Kold-Hold Mfg. Co. 9
Kramer-Trenton Co. 57

Lake Chemical Co. 78
Larkin Coils, Inc. 54
Lehigh Foundries, Inc. 66
Lenk Mfg. Co. 49
Lynch Mfg. Co., Par Division 1

McIntire Connector Co. 60
Marlo Coil Co. 18
Jas. P. Marsh Corp. 61
Minneapolis-Honeywell Regulator Co. 48
Mueller Brass Co. 2, 19

Northern Indiana Brass Co. 67

Paragon Electric Co. 72
Peerless of America, Inc. 16
Penn Brass & Copper Co. 71
Penn Electric Switch Co. 26

Ranco, Inc. 76
Revere Copper & Brass, Inc. 5
Rotary Seal Co. 73

Shurkold Refrigeration Co. 17
Skasol Corp. 80
Skilsaw, Inc. 74
Sporlan Valve Co. 13
Sprague Products Co. 52
Standard Refrigerator Trade-In Manual ... 62
Stangard-Dickerson Co. 79
Sun Oil Co. 38
Superior Valve & Fittings Co. 54

Temperature Control Devices, Inc. 47
Temprite Products Corp. 75
Texas Co. 64
Tudor Chemical Specialties, Inc. 68

Virginia Smelting Co. 50

Wagner Electric Corp. 8
Weatherhead Co. ..... Cover 2
Western Thermal Equipment Co. 74
White-Rodgers Electric Co. 69

The MARKET Place

RATES: minimum, 25 words, $2.00; each additional word, 10c. Bold type or all capitals: minimum, 25 words, $3.00, additional words, 15c. All insertions are payable in advance.

FOR SALE

ONE 30-H.P. YORK DUPLEX condensing unit mounted on cast iron base with single 30-ton condenser and two compressor units, R44T8f and L44T8f on Shop No. 67502, complete with belts, drive pulley, and water valves, but less motor. In excellent condition. Refrigeration Service Shop, Inc., 66 Straford Ave., Dayton, 2, Ohio.

FOR SALE—12 - 16 and 24 cubic ft. freezer cabinets. Write for list and prices. Rathbun Refrigeration Company, 44 Market Ave., N.W., Grand Rapids 2, Michigan.

FOR SALE—Air-cooled & water-cooled, remaunfactured condensing units, ¼ up to 2 H.P. Write for particulars, Edison Cooling Corp., 310 East 149 St., Bronz 51, N.Y.

EQUIPMENT WANTED

Wanted 12 Dry Ice Plants for the manufacture of CO_2 gas and solids, capacity 1 to 2 tons. Please apply to Dry Ice Utilizing Co., Ujjain (India).

EQUIPMENT WANTED

New or used, two Freon compressors of 25 to 35 tons capacity at 5° F. suction pressure, or ammonia equipment of comparable size. Also interested in 50 to 70 ton shell and tube brine coolers and shell and tube condensers. U. S. Thermo Control Co., 44 S. 12th, Minneapolis 4, Minn. Bridgeport 2167.

EQUIPMENT FOR SALE

We buy, sell and trade household and commercial refrigeration compressors and surplus equipment. Give complete details. Have Bargains, Want Bargains. Write Myers Electric—Manitowoc, Wis.

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WANTED, AGENCY FOR ICE CREAM BOXES, SODA FOUNTAINS AND RESTAURANT SUPPLIES BY WEST FLORIDA'S OLDEST AND LARGEST DISTRIBUTORS. CAPADUCA STORE FIXTURES, PENSACOLA, FLORIDA.

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COIL CLEANER

NO OBJECTIONAL ODOR

UTMOST IN LABOR SAVING

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CAN BE USED OVER REPEATEDLY

OFTEN IMITATED

IS SIMPLE TO APPLY

LET YOUR REFRIGERATION WHOLESALER EXPLAIN—**NOW**

SKASOL CORPORATION

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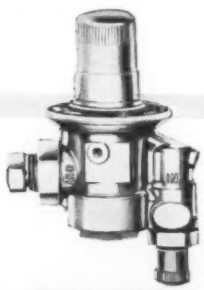
Metal Cap ON MODEL 204 AUTOMATIC EXPANSION VALVE PREVENTS VALVE HEAD FREEZE-UPS

WHEREVER AN AUTOMATIC VALVE IS USED . . . .



A-P Model 204
Automatic Expansion Valve.
Capacity, ¼ ton Freon

THE METAL cap over the adjusting stem on the new A-P Model 204 Automatic Expansion Valve is important in simplifying your service and improving refrigeration efficiency. It forms a tight seal against air or moisture, preventing freeze-ups in the valve head — while at the same time providing quick and easy accessibility to the adjusting stem where simple adjustment to the system can be made without the need for tools.

With a capacity of ¼ ton Freon, the A-P Model 204 is already lending longer life and improved operating efficiency to thousands of small refrigeration units. You'll want to know more about it, as you are called in to check today's and tomorrow's refrigerating units. Many will have the Model 204 as original equipment. Its proven DEPENDABILITY will minimize service call backs on these units through many years of satisfaction.

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EXPORT DEPARTMENT: 13 EAST 40TH STREET • NEW YORK 16, N. Y.

DEPENDABLE *Refrigerant Valves*

Stocked and Sold by Good Refrigeration Jobbers Everywhere • Recommended and Installed by Leading Refrigeration Service Engineers

ALL over America, retailers are continuing to devote their time and special talents to the important job of promoting, selling and buying U. S. Savings Bonds. They know that every minute of radio time and every line of advertising space devoted to bonds is a safeguard for stability. They know, too, that every window or store display is an attention-attracting stimulus toward greater "take home savings" in bonds—money that is kept within the community to help assure its future prosperity and purchasing power.

In small-village stores and in big-city department stores, there's still a big selling job to be done on U. S. Savings Bonds—and retailers are doing it now with the same vigor and skillful support that set billion-dollar records in War Bond Sales and helped to make Victory a reality. See your selling job through on U. S. Savings Bonds . . . maintain your share in America's future!

The Treasury Department has published two new booklets to help you and your employees realize full benefit from your Payroll Savings Plan. "Peacetime Payroll Savings Plan" is directed to key executives and contains helpful suggestions on how to organize and promote the sale of U. S. Savings Bonds. "This Time It's For You," for distribution to your employees, shows how the Plan works, how to select desired goals, and how much to set aside to achieve them.

The Treasury Department acknowledges with appreciation the publication of this message by

The Refrigeration Industry

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